Appendix A: Comments and Responses

Contents

Appendix A: Comments and Responses

This section of the appendix includes a summary of comments regarding the Beaufort Sea Areawide Preliminary Best Interest Finding, and the ADNR response to those comments.

A. Public Hearing

1. Teleconference between Kaktovik, Nuiqsut, Barrow and Anchorage, February 16, 1999 - 7:00 p.m.

Lon Sonsalla, Mayor of Kaktovik	
50 miles off Barter Island in any direction should be off-limits to any lease sale. Would like to see impact money go to affected communities.	ADNR is deferring the leasing of tracts from Barter Island to the Canadian border. ADNR will annually review the available information for these lease tracts to determine whether to change our decision to defer leasing in these areas. ADNR also believes that the seasonal drilling restriction (Mitigation Measure 17) and Mitigation Measure 15, which requires lessees to consult with the potentially affected subsistence communities, the AEWC and the NSB before submitting a plan of operations, will protect bowhead whales and other marine mammals, subsistence harvest activities, and other resources of the area. Permanent facility siting in state waters between the west end of Arey Island and the east end of Barter Island (Tracts 40 through 45) is prohibited under Mitigation Measure 16c unless the lessee demonstrates to the satisfaction of the director, in consultation with the NSB and AEWC, that the development will not preclude reasonable access to whales as defined in NSBCMP Policy 2.4.3(d) and in NSBMC 9.79.050(d)(1), and as may be determined in a conflict avoidance agreement if required by the NSB. The department does not currently have jurisdiction or authority to establish an impact aid program. Establishing one for local villages would require legislation and would be best addressed through legislative representatives. However, a recent lease sale in the NPRA has provided funding that may become available to the NSB, Barrow, Nuiqsut, Atqasuk and Wainwright under the NPRA Impact Fund Program.

Robert Thompson, Whaling crew member and artist	
Opposed to lease sale until such time anyone can demonstrate an effective oil spill clean up method. Should the lease sale proceed, the oil companies need to take responsibility for oil spills and inform the public that they can not clean it up.	An oil spill could be a very devastating event; however, there are numerous laws, regulations, and guidelines in effect to reduce the possibility of an oil spill and to ensure a rapid, effective response. Effective cleanup methods have been demonstrated for almost all conditions. Research for better methods continues. Oil companies have acknowledged that they are unable to meet the state's 72-hour response planning standard using mechanical techniques in some broken ice conditions. Other restrictions could be imposed on specific projects to lower the risk of oil spills, but these restrictions can only be developed when the project details are known, not at the lease sale phase.
Bert Akootchook, Whaling crew member	
Opposed to any ocean drilling, just stay on land.	ADNR is deferring the leasing of tracts from Point Barrow to Tangent Point and from Barter Island to the Canadian border. ADNR will annually review the available information for these lease tracts to determine whether to change our decision to defer leasing in these areas. Offshore drilling has occurred in the Beaufort Sea since the mid-1980s, and experience has shown it can be conducted safely. Mitigation Measure 15, requires consultation between the NSB, AEWC, an affected community, the state and lessees if proposed operations have the potential to disrupt subsistence activities. Lessees must notify the Director of all concerns expressed by subsistence hunters during operations and of steps taken to address such concerns. In addition, all Beaufort Sea Areawide tracts are subject to seasonal drilling restrictions (Mitigation Measure 17) upon commencement of the fall bowhead migration. Any interference with reasonable access to subsistence resources in the coastal zone, which includes the entire sale area, would be inconsistent with the NSB Coastal Management Plan.
Ida Angasan, Whaling crew member:	
No drilling in the ocean.	See response above.
Susie Akootchook, Whaling Crew Member	
I don't want any drilling in the ocean.	See response above.

Sharon Thompson, Village Coordinator	
Not comfortable with offshore drilling because lack of confidence in the oil companies. The ocean is our livelihood and way of life. I am not confident in oil companies response to oil spills, not given effective clean up plan especially on the ice. Is Alaska Clean Seas affiliated with the state? ACS said they would start local village training but have yet to start.	See the response to similar concerns above. Alaska Clean Seas is not affiliated with the state. ACS is a spill response cooperative funded by the oil companies operating on the North Slope. It is described in the Best Interest Finding in the oil spill section of Chapter 6. The ACS village training program is active and is conducted through the Ilisagrik College. Nuiqsut has a functional team, which conducts quarterly training exercises. The Barrow contract is in place, and ACS is trying to get a contract going with Kaktovik. On-ice cleanup would use techniques very similar to onshore methods. These are described Chapter 6 of the finding.
Jon Dunham, Barrow, North Slope Planning Department	
Incorporate all past Mitigation Measures from Lease Sales 87 and 86 to include prohibition on use of explosives for seismic surveys. Avoid any unreasonable conflict between oil and gas companies and subsistence activities. Incorporate conflict resolution systems between subsistence users and oil and gas companies. With more frequent lease sales would like the state to have dialog with involved communities over potential conflicts that might arise because of continued exploration both onshore and offshore. It is critical to the communities. Favor on-shore over offshore. Borough approval of North Star does not constitute a change in this policy.	Mitigation measures and lessee advisories from previous lease sales have been incorporated into Beaufort Sea Areawide. Use of explosives for seismic in the ocean is prohibited. Most onshore seismic surveys are conducted with Vibroseis equipment, however this equipment is not the best available technology in all circumstances, and there may be instances where the use of non-explosive energy sources is not practicable (such as in difficult terrain or if the substrate prevents adequate data collection). Seismic exploration is considered to be a development activity under NSB Municipal Code and therefore must receive administrative approval from the NSB prior to commencement (NSBMC 19.50.010). Under lessee advisory 4, copies of the non-proprietary portions of all Geophysical Exploration Permit Applications will be made available to the NSB, AEWC, and potentially affected subsistence communities for comment. As required by mitigation measure 1, lessees must consult with the NSB prior to proposing the use of explosives for seismic surveys. The director may approve the use of explosives for seismic surveys after consultation with the NSB. Mitigation measure 15 includes a conflict resolution provision to ensure subsistence

	harvesting, access, and resources are not infringed. Under areawide leasing, annual comment periods will be held on the North Slope prior to lease sales. Agencies and the public will be given approximately two months in which to provide any new information and the finding may be revised based upon comments received. The Commissioner has pledged to maintain dialog and, if possible, visit with communities in the NSB to discuss lease sales with local residents.
Leonard Lampe, Mayor of Nuiqsut	
Back to same issues as previous lease sales. Barter Island and Nuiqsut are impacted most by sale. Community is opposed to offshore lease sale in Beaufort Sea. Oil companies cannot or will not prove they have the technology to effectively clean up any oil spills in Arctic conditions or the Beaufort Sea. Communities would like that assurance of proven technology. Study of current near shore drilling shows a high risk to oil spills because of unexpected ice, weather and water conditions. Borough and impacted areas opposed to sale at this time unless all of Beaufort Sea be designated a high-risk area to oil spills. Nuiqsut City opposed to any offshore lease sale. No proven technologies for effective oil spill clean up in the Beaufort Sea. Ice conditions can prevent response. Once spill occur, the garden is gone. Was on spill response team with Alaska Clean Seas from Nuiqsut. Three key things important in a response: timing, knowledge of ice conditions and knowledge of personnel. They lacked all three. There is little or no local involvement with industry on offshore clean up. No proven technologies for oil spill clean up. Impact funds are important to our communities to compensate for the oil and gas development and loss of subsistence hunting grounds. Inupiat share everything - only way they live and survive. The Inupiat people are drawing the line at the ocean. Once damaged, it's gone.	In order to protect subsistence resources, and their harvesting, and to prevent potential conflicts between subsistence and recreational use of the sale area, and in due deference to the NSB, and ADF&G, ADNR is deleting from the sale tracts adjacent to Point Barrow and the spring lead system. ADNR is also deferring the leasing of tracts from Point Barrow to Tangent Point, and from Barter Island to the Canadian border. ADNR also has expanded protection of traditional whaling areas in Mitigation Measure 16, Whale Harvest Protection. Permanent facility siting in state waters within three miles of Cross Island will be prohibited unless the lessee demonstrates to the satisfaction of the director, in consultation with the NSB and the AEWC, that the development will not preclude reasonable access to whales as defined in NSBCMP Policy 2.4.3(d) and in NSBMC 19.79.050(d)(1) and as may be determined in a conflict avoidance agreement if required by the NSB. ADNR also believes that the seasonal drilling restriction (Mitigation Measure 17) and Mitigation Measure 15, which requires lessees to consult with the potentially affected subsistence communities, the AEWC and the NSB before submitting a plan of operations, will protect bowhead whales and other marine mammals, subsistence harvest activities, and other resources of the area. See response to Mayor Sonsalla's comment regarding impact funds.

	Alaska Clean Seas is expanding its village response training program. They are committed to combining local knowledge with scientific knowledge and the latest technology available to be able to respond quickly and effectively to all oil spills onshore and offshore. There are proven technologies for oil spill cleanup in the Arctic and spill prevention, response and cleanup technologies are improving. Federal, state and local laws hold the developers liable for any damage they may cause.
Arnold Brower Jr., President of Inupiat Community of the North Slope	
Speaking for the Barrow area, we have had for a long time and have followed the Alaska Eskimo Whaling Commission Policy, Oil and Whaler Offshore Agreement for Barter Island, Nuiqsut and Barrow. Would like tracts from Lonely or Cape Halkett to Barrow deferred until whaling quota is met or until freeze up as stated in the agreement. This is a liability and safety issue in our community. Oil company seismic and drilling activities disturb the whales in Cape Halkett and interfere with the migration of whales close to shore. Several whales have been caught up to 30 miles offshore and the meat was spoiled by the time it reached Barrow. Prefer whales undisturbed and close to shore (1 mile) without seismic noise and drilling activity. Interference is detrimental to community's subsistence and nutritional needs. Policy is of grave importance to people and would like it to be adhered to as stipulation to lease sale. Would like Nuiqsut and Kaktovik given the same assurance to this policy. Finding pretty well thought out. ACMP designed to make local concerns heard. No funds for impact studies on coastal villages. Villages are economically depressed and people are moving to Nuiqsut to work on Alpine project. There is no money for schools and tuition for North Slope People. Those impacts are not listed. Food resources 98% marine but impact on that resource not discussed. Need to redo part of the finding to address these issues. All money goes to the state and no money to affected communities as impact aid. Previous comments secondary to these. Exhaust the land for oil and gas first, before going offshore. Defer this lease sale.	In order to protect subsistence resources, and their harvesting, and to prevent potential conflicts between subsistence and recreational use of the sale area, ADNR is deleting from the sale tracts adjacent to Point Barrow and the spring lead system. ADNR is also deferring the leasing of tracts from Barrow to Tangent Point. ADNR also has expanded protection of traditional whaling areas in Mitigation Measure 16, Whale Harvest Protection. See Chapter Seven. ADNR does not believe that additional deferrals at Cape Halkett are needed to protect whaling. Similar to the Oil and Whaler Offshore Agreement, Mitigation Measure 15 requires the lessee to consult with potentially affected subsistence communities, the AEWC and the NSB to discuss potential conflicts with the siting, timing, and methods of proposed operations to prevent unreasonable conflicts with subsistence. Mitigation measures designed for this sale ensure it is consistent with the NSB Coastal Management Plan and the NSB concurs with this finding. Reasonably foreseeable impacts on municipalities and communities are described in Chapter Five. The Director has determined that it is in the best interests of all Alaskans to make prospective acreage available for leasing, exploration, and development as prescribed by the Alaska Lands Act and article VIII of Alaska's Constitution.

	See response to Mayor Sonsalla's comment regarding impact funds. See referenced deferral areas above.
Rosemary Ahtuangaruak, Nuiqsut	
Large sale will greatly impact many communities. Concerned about inadequate spill notification to communities such as by North Star and other oil developers. There are ongoing discussion and studies but concerned about findings such as: Study once a month instead of once a week, which would make identification and response to oil spill inadequate. Local residents told 2 to 4 miles an hour flow rate of spill, We feel it will be in excess of 12 miles an hour. Spills most likely to occur during break up with no real way to clean it up. Four spills for every 10 wells in any area. Over large lease area, numbers would be substantial. Also concerned about subsistence lifestyle and how it would be affected as well as the environment should an oil spill occur. Cumulative impact on development in such a large area will be too great. Strongly opposed to offshore lease sale.	As noted above, ADNR has deferred leasing areas identified as important for subsistence access and whaling. Spill notification is handled by the individual operators. They list those who will be notified in the oil discharge prevention and response plans (C-plans) that they must prepare and have approved before they are allowed to operate. Trajectory information is also included in the C-plans. The public may review these plans during the review process. Contact the Department of Environmental Conservation for more spill information. The Division of Spill Prevention and Response can be reached at (907) 465-5233. Estimating the number of spills that could happen is too speculative to be meaningful at the lease sale stage, as there are too many unknown variables are unknown at the time of the lease sale. The location and quantity of oil that might be found are two major factors. There is also no way to know when the "most likely" time for an oil spill is. Spill risk varies with the kind of operations being conducted. While it is true that mechanical cleanup during broken ice may be limited by the ability of the equipment to physically deal with the ice, there are other response actions that can be taken during that time. In situ burning and dispersants may be effective response tactics depending on the conditions present at the time of the spill.
Dora Nukapigak, Nuiqsut	
Is Cross Island in the lease sale? Opposed to any lease sale from Barrow to Kaktovik and beyond. We live off the land and the sea. People are already affected by the Alpine Project and getting sick from smog and pollution. If we get any development on the west side, we will be totally surrounded by development. We hardly see any caribou. We don't want to see whales & seals affected by offshore development. We use Nechelik Channel, Colville Channel to Cross Island to Oliktok and to the west side out in the ocean,	All unleased subsurface acreage in the sale area, including acreage near Cross Island, is included in the lease sale. ADNR has imposed a number of Mitigation Measures to protect subsistence use, including use of Cross Island. Proposed Mitigation Measure 15 requires that all exploration, development or production operations must be conducted in a manner that prevents unreasonable conflicts between lease-related activities and subsistence activities. To ensure that the intent of this measure is carried out, lessees may be required to enter into

and would hate to have that taken away from us. We had to go 30 miles out to sea to get a whale last fall, while seismic activity was in progress near west dock. As soon as seismic activity stopped, whales returned to a mile off Cross Island. We used to get whales a mile offshore in years past.	consultation with local government and any potentially affected harvest group to discuss potential conflicts with the siting, timing, and methods of proposed operations and safeguards, or mitigating measures which could be implemented by the operator to prevent unreasonable conflicts. Available options include alternative site selection, requiring directional drilling, seismic and threshold depth restrictions, and the use of other technologies deemed appropriate by the Director. This measure is specifically designed to protect subsistence activities. Mitigation Measure 16, whale harvest protection, prohibits the siting of permanent facilities on Cross Island, within three miles of the island, and between the west end of Arey Island and the east end of Barter Island, unless the lessee demonstrates that the development will not preclude reasonable access to whales. This requirement helps assure that subsistence activities are not significantly interfered with and that the continued availability of whales for subsistence purposes is not jeopardized. Mitigation Measure 17 provides that any tract or portion thereof in the Beaufort Sea Areawide Lease Sale area may be subject to seasonal drilling restrictions. The measure provides specific seasonal drilling restrictions for exploratory drilling operations from bottom-founded and floating drilling structures and natural and man-made gravel islands. The measure defines seasonal drilling requirements that apply to the Eastern, Central and Western subsistence whaling zones. The measure further restricts exploratory drilling operations in broken ice conditions. These requirements are designed to prevent oil spills and to avoid the discharge of oil and hazardous substances to the Beaufort Sea. This measure is specifically designed to protect subsistence whaling. Proposed Mitigation Measure 18 states that access restrictions are not permitted except in the immediate vicinity of facilities. This ensures continued access to subsistence resources.

	Lessees are advised that the NSB Assembly has adopted a comprehensive plan and land management regulations under Title 29 of the Alaska Statutes (AS 29.40.020-040). The NSB regulations require borough approval for all proposed uses, development and master plans. Seismic activities are considered to be development. Copies of the non-proprietary portions of all Geophysical Exploration Permit Applications will be made available to the NSB, AEWC, and potentially affected subsistence communities for comment. ADNR has forwarded your health concern to he State of Alaska Department of Health and Social Services, who has not been contacted regarding respiratory health problems. According to EPA, air quality on the North Slope is good. Facilities are permitted by ADEC and EPA and must comply with the Clean Air Act. Recommend contacting the North Slope Borough Health and Social Services Department.
Robert Thompson, Kaktovik	
Has there been any proven technology to clean oil from the ocean and the ice? Completely opposed to sale because there is no technology to clean oil. Is there any under-ice sea current studies? Is there any way to get oil out of the ocean under ice? If the technology does not prove effective, will it nullify the lease sale? Who decides if the research is adequate and effective for the area? Is there any oil spill response teams in Kaktovik or Nuiqsut? So what is the contingency if all the whales die? Opposed to sale, risks too great.	There are proven technologies that can be used to clean up oil from the ocean and the ice under most circumstances. Response technologies include mechanical methods such as boom and skimmers and non-mechanical means such as in situ burning and dispersants. These are discussed in more detail in the oil spill section in Chapter 6. Additional information regarding response technologies may be found in Alaska Clean Seas Technical Manual, which describes tactics that would be used for responding to various spill scenarios and oil discharge prevention and response plans, which are prepared for specific operations and must be approved by the federal and state governments. The lease sale cannot be nullified by ineffective cleanup technology. Oil companies have acknowledged that they are unable to meet the state's 72-hour response planning standard using mechanical techniques in some broken ice conditions. However, technology continues to improve and all oil spill cleanup plans must be approved before a project can proceed. Nuiqsut has an active village spill response team. It participates in quarterly drills and in

	the annual Mutual Aid Drill conducted by the North Slope Operators. Alaska Cleans Seas is seeking a contractor to coordinate a similar team for Kaktovik, and a team is also being set up for Barrow.
Bernice Kaigelak, Nuiqsut	
Alaska statues and regulations, when they break them, do you fine them? In the sale, state received all the money. Not fair. Who makes sure companies follow and adhere to the restrictions? Why does the borough have to spend their money, when we are in so much need? Opposed to lease sale in our waters. In favor of subsistence lifestyle.	Usually, if there is some non-compliance issue brought to the attention of the Department, permitting staff works with the lessee or operator to correct the problem and ensure the error doesn't occur again. Sometimes, civil or criminal penalties are assessed, for example in the case where Doyon Drilling illegally injected hazardous waste at the Endicott field. ADNR, ADEC, and AOGCC staff maintain year-round offices on the North Slope and routinely inspect oilfield operations. Additionally, operations are inspected by EPA, USACE, USFWS, NMFS, the NSB, and ADF&G for compliance with regulations and permit stipulations. All Plans of Operation permit applications are reviewed for their compliance with sale mitigation measures and coastal management program policies. See also responses to Arnold Brower Jr. and Dora Nukapigak regarding protection of subsistence.
Karen Burnell, Planning Director for North Slope Borough	
Go on record as opposing the sale for the North Slope Borough. Leasing onshore first. Ocean is our garden. State must compensate affected people. Because of the magnitude of the sale, the state should be developing impact funds for the communities affected. Because of depressed oil prices, companies moving out, new gas line being shut down. The state should reconsider the finding instead of having a liquidation sale.	Oil prices fluctuate from time to time, and it would not be prudent to halt leasing simply due to current low oil prices, especially because of the time lag it takes to explore, develop, and eventually produce a prospect. The dramatic increase in the price of oil since December 1998 argues against trying to use it as a factor when scheduling sales. See response to Mayor Sonsalla's letter regarding impact funds.

B. Written Comments

1. State Government

Alaska Department of Fish And Game, A. Ott, 3/2/99	
Defer tracts 573, 574, and 575 to reduce potential impacts to marine mammals, waterbirds and subsistence harvest activities	These tracts have been permanently deleted from this 10-year best interest finding.
Defer leasing in the spring lead system, including that portion that extends northeastward from Point Barrow until industry can demonstrate the capability to clean up an oil spill in the lead system and the issue of noise on marine mammal movements can be resolved.	Because of the spring migration path, the three westernmost tracts above Pt. Barrow (tracts 573, 574 and 575) have been deleted from this 10-year Best Interest Finding.
The mitigation of adverse social and subsistence-related impacts may be more difficult in the point Barrow area than in previous sales because of the concentration of subsistence activities in the area.	All tracts from Pt. Barrow to Tangent Point (Tracts 555 and 557-573) have been deferred. ADNR will annually review the available information for these lease tracts to determine whether to change our decision to defer leasing in these areas.
BLM has implemented protective measures for the Teshekpuk Lake Special Area (TLSA) portion of NPR-A. These prohibitions and their ramifications (e.g., offshore processing, long distance subsea pipelines) should be mentioned in the final finding.	The TLSA is outside the sale area. ADNR is not required to discuss the protective measures BLM has implemented for the TLSA under AS 38.05.035(g). Offshore processing and subsea pipelines are discussed in Chapter Five, "Development and Production," and Chapter Six, "Likely Methods of Transportation."
Concerned about the cumulative effects of oil and gas activities on subsistence activities and resources used by local communities. An analysis of subsistence-related and other mitigation measures should be conducted to evaluate their effectiveness over time.	DO&G consulted with ADF&G regarding appropriate language for lease terms, and requested additional input and evaluation from ADF&G regarding their effectiveness. ADNR welcomes the opportunity to meet with ADF&G to discuss the effectiveness of the subsistence mitigation measures and stipulations associated with state lease sales. Additional mitigation measures can be imposed or existing ones amended at any time during the life of the lease.
We request the following additional tracts be included in Mitigation Measure 22b which prohibits operations that create high levels of disturbance along the coast from June 20 to September 15: 161-165,185-188, 216-220, 229-231, 254, 279, 280, 284, 285, 287, 298, 299, 301, 320, 321, 327, 328, 330, 331, 340-343, 354-358, 382, 392, 393, 411, 412, 422, 424, 425, 431, 438, 439, 441, 442, 456-459,	ADF&G's original request for measure 22(b) primarily included tracts offshore of the Teshekpuk Lake Special Area (TLSA). The intent of the measure is to protect high concentrations of staging and molting brant and other waterbirds within the coastal habitats along the TLSA. ADNR agreed to measure 22(b) because it recognizes the importance and sensitivity of the TLSA. To protect large

462, and 463.	concentrations of breeding snow geese, ADNR also agreed to seasonally restrict activities on Tracts 187, 209, 231, and 320. Although these tracts are not offshore of the TLSA, they were subject to the same restriction when they were previously offered in Sales 52 and 65. However, the extensive list of additional tracts provided by ADF&G was not accompanied by sufficient justification regarding why these tracts should also be subject to these restrictions. Further, there are existing facilities/operations on many, if not all, of the tracts, specifically tracts 279, 280, 287, 284, 285, 298, 299, 301, 302, 340 and 356. Some have West Sak wells and West Dock on them. The Milne Point F Pad is on tract 340. Tract 356 has the seawater treatment plant on it. The rehabilitation of an old gravel mine site is occurring on tracts 298, 299, 301, and 302. Therefore, this suggestion has not been adopted.
We continue to recommend lessees be required to prepare and implement bear interaction plans to avoid or minimize conflicts between bears and humans at exploration development facilities.	At an elevation of the issue for Sale 80 between DO&G and ADF&G, it was decided that bear interaction plans would not be required, but recommended. However, it is standard practice for operators to prepare bear interaction plans in the interests of health and safety.
Chapter Nine and Appendix A indicate that a permit term is included regarding protection of spotted seals from boat and barge traffic. However the indicated permit term (Mitigation Measure 24) is not included in Chapter Seven, Mitigation Measures and Lessee Advisories. We request a permit term regarding spotted seals similar to that used in sale 52 be applied to the Piasuk River delta (Tracts 526 and 537).	This term was inadvertently omitted from the list of mitigation measures in Chapter Seven and has been included as Measure 25 in this finding.
To our knowledge there is no Milne Point gravel island off the Sagavanirktok River Delta.	This island, called NW Milne #1 is located north of Milne Point. The finding has been amended.
Pipeline trench soil spread on the ice surface would tend to promote more rapid melting in spring, rather than insulating the ice and retarding ice melt.	This information came from federal EIS 170 (IV-G-7). According to Dick Prentki, Oceanographer, MMS, any dirt greater than 1 mm in thickness retards melting. MMS stands by this statement.

The preliminary finding states that construction activities would likely affect the distribution of polar bears for the length of the construction period (generally less than a year). Localized effects of structures on ice movements and ice formation would occur for the life of the structures, thereby potential affecting polar bear and their prey's distribution for a considerably longer period than one year.	The finding did not say that the effect of structures would be less than a year. It said that construction activities would likely affect the distribution of polar bears for the length of the construction period. It is true that localized effects of structures may occur for the life of the structures, but construction activities would not.
The statement that some losses of bears from bear-human encounters near industrial sites and settlements are unavoidable is inaccurate. Most, if not all, potential human-bear encounters should result in no mortality to bears if adequate precautions are taken (e.g., requiring bear interaction plans).	The statement that these losses "are unavoidable" has been deleted from the final finding.
Add "and other identified coastal sites" to include identified coastal salt marshes used by waterbirds outside the boundaries of the TLSA.	The finding has been amended and the phrase "and other areas" has been added to Mitigation Measure 22b.

2. Federal Agencies

U.S. Fish and Wildlife Service, L. Bright, 3/1/99	
The Preliminary Finding does not adequately assess the potential of leasing on North Slope coastal areas, particularly ANWR.	Under AS 38.05.035(g) ADNR is required to discuss, among other things, fish and wildlife species and their habitats in the area; current and projected uses in the area; the reasonably foreseeable cumulative effects on the sale area. This is done in Chapter Three, "Fish and Wildlife," Chapter Four, "Current and Projected Uses," and Chapter Five, "Cumulative Effects."
Much of the information is identical to previous findings for lease sales. ADNR has not taken advantage of more recent environmental reviews such as the environmental impact statement for NPRA.	ADNR has reviewed the NPRA Final Integrated Activity Plan/Environmental Impact Statement and incorporated relevant information where appropriate.
In the discussion of transportation the assumption is made that the preferred method of transportation for offshore oil is subsea pipelines bringing oil to shore the most direct route. It does not appear logical that offshore development east of Brownlow Point could occur without the existence of onshore infrastructure in ANWR. Requests that ADNR defer leasing until a through analysis of impacts to the refuge's fish, wildlife and habitat is conducted.	Chapter Six has been modified and improved in its discussion of transportation alternatives. Additionally, ADNR is deferring the leasing of tracts from Barter Island to the Canadian border. With this best interest finding, ADNR has completed the statutory requirements of leasing as prescribed in AS 38.05.035.

The statement that almost any kind of equipment can travel (in winter) with little or no damage is refuted by Emers and Jorgenson (1997).	Emers and Jorgenson assessed the recovery status of tundra vegetation that was damaged by ski-mounted camps pulled by D-7 Caterpillar tractors during seismic surveys in 1984-85. Since that time, standard conditions for cross-country movement of equipment have been developed (Alaska Coastal Management Program General Concurrence 19) which prevent or minimize damage to the tundra. For example, tight-radius turns are avoided, and snow conditions must be deep enough to avoid penetration of the tundra mat. The findings of Emers and Jorgenson do not contradict the statement in the finding because modern tundra travel practices are different than those of the past.
Arctic kelp occurs in other areas besides Stefansson Sound, such as Konganevik Point in western Camden Bay, near Barter Island, and Demarcation Point.	The finding has been amended (Chapter Three). ADNR has a representative on the Arctic Biological Task Force, which is consulted when projects are proposed that could impact known or newly discovered boulder patch communities. Stefansson Sound is highlighted because the known concentrations of kelp are greater there than in other parts of the Beaufort Sea.
The finding discusses caribou too broadly, lumping the four north slope herds into one description of distribution, seasonal movements, and habitat use. These descriptions need to be specific to the herd.	The final finding has been amended to include more specific information on each caribou herd.
The discussion of muskoxen is limited to the central North Slope, and misrepresents the current status and distribution of muskoxen across the rest of the project area.	Additional information on current status and distribution of muskoxen had been incorporated into the final finding.
The discussion of polar bears is relative to the central north slope, but not the entire project area as illustrated by the statement "[t]he most preferred region for land denning is located east of the proposed sale area in the northeast corner of Alaska adjacent to Canada." The northeast corner of Alaska is in the project area and is part of ANWR.	The finding has been amended to state that the most preferred region for land denning is located *south* of the sale area. There is no part of ANWR within the sale area.
The finding focuses its subsistence analysis on Nuiqsut. More attention is needed on the potential impacts to Barrow and Kaktovik.	The finding has been amended to include more information on Barrow and Kaktovik subsistence.
Further review, analyze, and report predicted impacts on caribou, oldsquaws, and threatened /endangered species; and advise lessees of the potential to encounter polar bears.	Information has been added to the finding regarding potential effects on caribou and oldsquaw ducks. Potential effects on threatened and endangered species are discussed in

	Chapter Five. Also, additional information has been added to the finding regarding polar bears. Mitigation measure 23 was designed to minimize, reduce or avoid potential adverse impacts on bears. Lessee advisory 5 reminds lessees that they must comply with the Marine Mammal Protection Act as amended.

3. Industry and Support Organizations

Alaska Oil and Gas Association, J. Brady, 3/1/99	
It is appropriate to propose an areawide sale for the Beaufort Sea. Areawide leasing was adopted by unanimous vote of the Alaska legislature and signed by Governor Tony Knowles in 1996. During extensive legislative hearings the Beaufort Sea was identified as one of the areas in the state that should be open for areawide leasing.	Comment noted.
There is a long established history of leasing both state and federal offshore acreage in the Beaufort Sea. Many of the tracts included in the sale area are currently under lease.	Comment noted.
The preliminary finding references the enormous variety and detail of information accumulated in 34 years of oil and gas leasing, exploration and development in the Beaufort Sea area and meets all the requirements for a best interest finding under AS 38.05.035.	Comment noted.
The preliminary best interest finding accurately identifies the technological advances that have occurred in the oil and gas industry of the past 34 years. These either eliminate or mitigate concerns of the past.	Comment noted.
AOGA requests that stipulations and mitigation measures are justified and based on the scientific studies and experience of the past 34 years rather than simply being imposed in response to a perceived environmental or public risk. Members continue to be concerned with both the addition of new restrictions and expansion of existing restrictions on oil and gas operations within lease sale areas when these restrictions seem to be unrelated to risk. Particularly troublesome are restrictions limiting operations tied to specific tracts such as Mitigation Measure 22b, as well as the general time periods limiting operations. If additional restrictions are added potential projects may become uneconomic.	When creating its mitigation measures, ADNR attempts to balance environmental protection with oil and gas development. These mitigation measures have evolved over the years and represent a consensus between the state's resource agencies. Federal agencies, the NSB, and industry have also had input in the development of mitigation measures.

We prefer language that identifies areas of habitat concern and allows for negotiation with wildlife managers from the NSB, state, and federal agencies on mitigation. There is a long work history that validates this approach. A flat prohibition should not be used except in the most extreme areas of risk.	Comment noted. These mitigation measures have been developed over several decades of lease sales by ADNR and represent consensus reached between state resource agencies and coastal districts.
ADNR has the same information industry has in regard to the individual successes over the years as well as the investments that did not produce. Obviously companies will be looking at that information when they make decisions as to new or further investments. They will also be looking at increasingly short exploration and production seasons, increasingly higher associated costs and the lowest oil prices in years. We request ADNR return to the ten-year lease term for this sale and allow for the lowest possible royalty. Given the low oil prices of today and what we all know to be true about the cost and risk of investment, the state will have a better chance of attracting more new company investment with better terms.	The seven-and ten-year lease terms are designed to encourage the lessee to proceed quickly with exploration. ADNR believes that seven years is sufficient and a reasonable timeframe to conduct exploration. If oil is discovered the lessee can unitize the prospect and the issue of lease terms becomes moot.
Anadarko Petroleum Corporation, T. Liebl, 3/1/99	
Anadarko agrees with and supports ADNR's conclusion that The Beaufort Sea Areawide sale is consistent with the ACMP and the NSBCMP.	Comment noted.
Anadarko Petroleum Corporation, T. Liebl, 3/1/99	
Anadarko supports continued implementation of areawide leasing. Lease sales occurring on a dependable schedule was a cornerstone for the support of the areawide leasing legislation by industry. A dependable schedule is even more critical during these times of depressed oil prices in order for Alaska to compete successfully in the global marketplace.	Comment noted.
We request that ADNR consider 10 year leases for all portions of the Beaufort Sea.	The seven and ten year lease terms are designed to encourage the lessee to proceed quickly with exploration. ADNR believes that seven to ten years is sufficient and reasonable timeframe to conduct exploration. If oil is discovered the lessee can unitize the prospect and the issue of lease term becomes moot.
Supports the conclusion that the sale is in the state's best interest.	Comment noted.

ARCO Alaska Inc., M. Richter, 3/1/99	
ARCO supports regularly scheduled and predictable lease sales. Recommend that ADNR at no time decrease the current sale area.	The Alaska Department of Natural Resources (ADNR) has deleted Tracts 573-575 from the final finding, and renumbered Tract 576 as 573. Deletion means these tracts are not covered by this best interest finding and will not be offered for lease in the next 10 years. ADNR has deferred from this sale all tracts from Pt. Barrow to Tangent Point (Tracts 555, 557-573) and from Barter Island to Canada (Tracts 1-39). Deferral means that these tracts will not be offered for lease in the 1999 areawide sale, but may be included in future lease sales. Even though existing mitigation measures (Chapter Seven) provide the necessary protection for subsistence activities, ADNR is taking the extra precaution of removing these tracts from consideration at this time. In addition, it seems unlikely that these tracts would be immediately subject to development. It is possible that during the 10-year period covered by this finding the prospects for developing these tracts will increase. ADNR will annually review the available information for these lease tracts to determine whether to offer them in the future.
Concerned about growing operational restrictions that serve to lessen industry participation by making leasing uneconomic. The state should promote community, wildlife, and habitat values without unduly burdening environmentally responsible exploration and development.	When creating its mitigation measures, the state attempts to balance environmental protection with oil and gas development. These mitigation measures have evolved over the years and represent a consensus between the state's resource agencies. Federal agencies, the NSB, and industry have also had input in the development of mitigation measures.

4. Organizations

Trustees for Alaska et al.	
The small amount of oil likely to be found in these areas does not justify the corresponding years of air and water pollution, disturbance and other related threats to the integrity and beauty of numerous national treasures including the National Petroleum Reserve-Alaska and the Arctic National Wildlife Refuge, the constant threat of oil spills, actual oil spills, aesthetic harm, harm to subsistence resources, values, and cultures, harm to fish and wildlife, harm to recreational values, harm	It is impossible to predict the amount of oil that is likely to be found until exploration takes place. If small amounts of oil are found the resultant impacts would be expected to be small. NPR-A and ANWR are not in the sale area. Oil spill prevention and response is discussed in Chapter Six. Potential effects on fish, wildlife, subsistence, and historical and cultural resources are discussed in Chapter Five. Effects

to sustainable economies, and the negative effects of adding more carbon dioxide (CO2) into the atmosphere which increases the threat of global climate change.	on air and water quality are also discussed in Chapter Five. The sale's contribution of CO_2 into the atmosphere cannot be reasonably foreseen, and is beyond the scope of the finding as set forth under AS 38.05.035(h). See Chapter One for a description of the statutory requirements and scope of a best interest finding. Aesthetic impacts are impossible to foresee because they are inherently subjective and vary from individual to individual. ADNR believes impacts to recreational uses of the sale area will be negligible. The sale area is almost completely offshore, thus recreational uses would be limited to marine boating, flight-seeing, and possibly snowmachining or dog sledding. Adverse impacts to such uses would be highly unlikely. Provisions to protect subsistence uses of the sale area would similarly protect recreational uses for non-residents or seasonal visitors. Mitigation Measure 18 prohibits any restriction of public access to, or use of, the lease area as a consequence of oil and gas activities except in the immediate vicinity of drill sites, buildings and other related facilities.
Additional infrastructure that will irreparably harm the environment would not be in the state's best interests.	ADNR believes direct impacts due to infrastructure construction can be mitigated. Long term impacts from major energy projects, like the Endicott Causeway are monitored for years following construction. After results are analyzed, mitigation may be required, (as was the case for breaching the Endicott and West Dock causeways to allow fish passage). Remediation technology is available to return oilfields to their natural state following decommissioning. The state requires rehabilitation and site remediation under paragraph 21 of the lease contract.
DNR should not hold a lease sale that is unlikely to generate the highest return to the state, given the present economic climate of the Alaska oil industry.	Energy prices are volatile, ranging in this decade from approximately $9 to $30 per barrel. Since hitting their low, oil prices have recovered to $16 to $17 per barrel. The bonus bid is a small part of the revenue the state realizes from oil and gas development. Over time royalty payments and taxes generate the majority of revenue from a lease. The price of oil during production has a far greater impact on state revenue than the price at the time of a lease sale. It is impossible to predict the course of energy prices and what they might be at the

	time of production. Furthermore, the state sets a minimum bid per acre. This assures tracts won't be leased at "distress sale" prices.
Because NPR-A and the Arctic Refuge are unavailable for surface oil transportation, DNR must analyze the impacts from the offshore transport of oil from these remote areas.	Only a portion of NPR-A is currently unavailable for surface oil transportation. It is possible that this could change in the future if an EIS were to conclude that granting an onshore pipeline right-of-way were the best option for bringing oil from federal or state leases to TAPS. If this were not permitted, a subsea pipeline could come ashore in the vicinity of Smith Bay, run south of the area off limits to development, and then east through NPR-A, connecting with the Alpine development infrastructure (See Figure 6.4). If this were not permitted, then an offshore pipeline system similar to that proposed offshore of ANWR could be considered. See Chapter Six "Likely Methods of Transportation," for this analysis. It should be noted that ANILCA only prohibits production and development within ANWR. A pipeline right-of way could be granted by the Secretary of the Interior, or Congress could eventually decide to allow development in the 1002 area. However, the transportation discussion is premised on the assumption that ANWR will not be available for onshore support.
Caribou use the barrier islands and beyond for insect-relief. Oil development in state waters will harm caribou populations using barrier island habitat (See Photo and map showing caribou use of barrier island habitat, attached to brief of *amicus curiae* The Wilderness Society, et al. in United States of America v. State of Alaska, U.S. Supreme Court, No. 84 (1996)).	Caribou use of the barrier islands is described in Chapter Three. Caribou rarely use barrier islands, although there have been caribou on Flaxman, Tigvariak, and Cross Islands, and probably others. According to ADF&G, the islands couldn't be considered critical or even important habitat. Caribou use mainland beaches for insect relief. Effects on caribou and their habitat, including insect relief areas, are described in Chapter Five. Caribou use of the barrier islands is unlikely to be altered significantly from reasonably foreseeable exploration, development, production, or transportation because virtually all construction and exploratory activity is done in winter when caribou are not present. Development facilities must comply with coastal management program goals, and oil spill contingency plans that address protection of coastal dwelling species are required prior to project approval.

Because of the sheer size of the proposed sale area and the diversity of habitats found in it, it is impossible for DNR to adequately consider in one best interest finding all of the statutorily required issues. DNR has given only cursory consideration to many complex issues facing different regions within the larger sale area.	ADNR believes it has satisfied all statutory requirements (See Chapter One, AS 38.05.035(g)). ADNR has considered every material issue raised during the public process for this sale. In addition, it has consulted with resource agencies and the NSB regarding mitigation measures. It has also reviewed DGC responses to related issues for their coastal zone consistency determinations. Additionally, the commissioner is personally involved in issues resolution among affected parties.
A. The purpose of AS 38.05.035(g)(1)(B)(viii) is to evaluate the risks involved in transporting oil and gas that must be considered in determining whether proceeding with the sale is in the best interests of the state.	Under AS 38.05.035(g)(1)(B)(viii) the director must consider the method or methods most likely to be used to transport oil or gas from the lease sale area, and the advantages and disadvantages, and relative risks of each. This was done in Chapter Six, "Likely Methods of Transportation."
The PBIF fails to discuss the relative advantages, disadvantages, and risks of each likely transportation method, and it fails to address methods likely to be used to transport oil from areas currently far removed from transportation infrastructure.	Several methods and the relative advantages, disadvantages, and risks are discussed. These transportation methods apply throughout the sale area. Regardless of where oil is discovered one of these methods or a combination of methods discussed in Chapter Six would be used.
The PBIF is premised on the use of subsea pipelines, yet the risks associated with such buried pipelines render them contrary to the state's best interests.	The best interest finding is not premised on the use of subsea pipelines. The means of transportation may incorporate elements of all the methods discussed. Simply because there are risks involved in the use of subsea pipelines does not necessarily render use of them contrary to the state's best interests.
The Corps of Engineers estimates that a large spill, i.e. one over 1,000 gallons, has a 95.2 percent likelihood of occurring from existing and potential future state and federal Beaufort Sea offshore oil and gas development. (Northstar FEIS at ES-106). Even without BP's risky Northstar project, the Corps predicts a 93.7 percent chance of a large oil spill.	The Corps' prediction of a 93.7-percent chance of a large spill in absence of the Northstar project includes all flow and gathering lines, processing and handling facilities, storage facilities, etc. both onshore and offshore, not just risk associated with offshore pipelines.
The PBIF includes only a general discussion of the transportation modes currently in use or proposed for use in the proposed sale area (elevated or buried pipelines onshore, causeways or buried or elevated pipelines offshore). (PBIF at 6-17 to 6-22). While the PBIF purports to list advantages and disadvantages of these methods, the transportation alternatives are never compared	AS 38.05.035(g) (viii) requires ADNR to discuss the methods most likely to be used and relative advantages, disadvantages, and relative risks of each. ADNR has done this in Chapter Six "Likely Methods of Transportation The statistical risks of various transportation methods are discussed in Chapter Six, "Oil Spill Risk."

to one another, and the relative risks of each is impossible to ascertain. The PBIF provides no discussion about the *relative* advantages, disadvantages, and risks of different methods to transport oil and gas.	
The PBIF states that commercial quantities of oil found in the proposed sale area will go to market via the Trans-Alaska Pipeline System (TAPS). Absent a change in federal law, the National Petroleum Reserve-Alaska and the Arctic National Wildlife Refuge are unavailable for occupancy by surface transportation facilities. The Secretary of the Interior included a stipulation that permanent roads or docks connecting to areas outside the planning area of NPR-A are prohibited, without exception. See NPR-A ROD at 38. In each case, some significant new infrastructure would appear likely, and the PBIF fails to consider the relative advantages or whether such activities are in the best interests of the state. The PBIF completely fails to acknowledge this fact or the attendant risk in oil transportation, or to explain how oil discovered in areas offshore of the NPR-A or the Arctic Refuge would be transported to market.	Only a portion of NPR-A is currently unavailable for surface oil transportation. It is possible that this could change in the future if an EIS were to conclude that granting an onshore pipeline right-of-way were the best option for bringing oil from federal or state leases to TAPS. If this were not allowed, a subsea pipeline could come ashore in the vicinity of Smith Bay, run south of the Teshekpuk Lake area and then east through NPR-A, connecting with the Alpine development infrastructure. (See Figure 6.4). Stipulation 48 in the NPR-A EIS prohibits permanent roads connecting to a road system or dock. According to BLM, this stipulation was designed to keep a road from crossing the Colville River; it would not prohibit a pipeline. In fact, a pipeline under the Colville already exists for the Alpine development, although it is not yet operational. If an onshore route through NPR-A were not permitted, an offshore pipeline system similar to that proposed for ANWR could be considered. See Chapter Six "Likely Methods of Transportation," for this analysis.
For instance, if oil was discovered in Smith Bay or another area offshore of the NPR-A west of existing North Slope infrastructure, what is the likely transportation method, and what are the relative advantages, disadvantages, or risks? Also, if oil was discovered in Demarcation Bay or another area adjacent to the Arctic National Wildlife Refuge, how would oil get to TAPS, given that onshore infrastructure is not possible? DNR must provide this analysis for all areas of the proposed lease sale that are offshore of NPR-A and the Arctic Refuge.	See response above. If an onshore pipeline were not permitted in NPR-A then a totally offshore transportation system, similar to that described off the coast of ANWR, consisting of causeways, subsea pipelines, elevated pipelines and elevated causeways, or a combination of all of these methods would be considered. The advantages, disadvantages, and risks are discussed in Chapter Six "Likely Methods of Transportation," and "Oil Spill Risk, Prevention and Response,"
According to the Alaska Supreme Court, DNR must discuss in its best interest finding the likely product transportation methods it would employ or authorize if commercial quantities of oil were found in remote areas of the Arctic National Wildlife Refuge or NPR-A. Trustees for Alaska v. State, Dept. of Nat. Resources, 795 P.2d 805, 810-11 (Alaska 1990) (Camden Bay).	Under AS 38.05.035(g)(1)(B)(viii) the director must consider the method or methods most likely to be used to transport oil or gas from the lease sale area, and the advantages and disadvantages, and relative risks of each. ADNR has fulfilled the statutory requirements. See Chapter Six, "Likely Methods of Transportation and "Oil Spill Risk".

	ADNR itself does not employ transportation methods, and aside from right-of-way approvals, has a limited role in approving the design of such projects. The USACE and JPO have more jurisdiction over pipelines. At the lease sale phase, ADNR cannot speculate what transportation method these agencies would authorize if commercial quantities were found.
Because neither NPR-A nor the Arctic Refuge currently have or are available for onshore surface transportation facilities, transportation from these offshore areas presents unique environmental risks. To get oil from the eastern edge of the proposed lease sale area, an 80-mile subsea pipeline would be necessary. To get oil from the western edge of the proposed lease sale area, a subsea pipeline nearly 150 miles long would be required. Like the best interest findings invalidated in the Camden Bay and Demarcation Point cases, the Beaufort Sea Areawide PBIF fails to mention facilities of this magnitude at all, much less the critical question of whether they are safe. 795 P.2d at 811. The risks associated with such difficult offshore transportation must be weighed with other risks and benefits flowing from the decision to lease.	It is technically feasible to transport oil safely from the area off ANWR. The methods are discussed in Chapter Six, "Likely Methods of Transportation." ADNR is not required to demonstrate the economic feasibility of developing leases offshore from ANWR. The economic feasibility of development cannot be adequately addressed at the lease sale stage because the existence, location and extent of any future discovery cannot be known prior to exploratory drilling.
Without a consideration of the transportation difficulties that result absent a change in federal law related to the NPR-A and the Arctic Refuge, it is impossible to ascertain whether this proposed lease sale is in the state's best interests.	Chapter Six "Likely Methods of Transportation," and "Oil Spill Risk, Prevention and Response," discuss various transportation options and the advantages and disadvantages and risks of each as required by AS 38.05.035(g)(vii). The discussion is premised on the assumption that ANWR will not be available for onshore support.
The PBIF concludes that subsea pipelines connecting offshore production islands are a "preferred method" for the marine transportation of petroleum from the proposed sale area, although it still does not address the practical difficulty of doing so from remote locations. (PBIF at 9-4).	Industry experts generally favor subsea pipelines. Chapter Nine has been corrected to state this. Chapter Six, "Likely Methods of Transportation," discusses the advantages, disadvantages and risks of the various methods in accordance with AS 38.05.035(g) (viii). Mitigation Measure 8a (paraphrased in the PBIF on page 9-4) states that offshore oil and gas transportation pipelines will be encouraged if the Director determines that the laying of such pipelines is technically feasible and environmentally preferable to transport by oil tanker or other means.

The PBIF acknowledges that "there are times of the year when response is more difficult and activity restrictions are necessary," although it fails to state what restrictions might be required or when. (PBIF at 9-4).	Possible operational restrictions must be identified when a project is proposed. At that point sufficient information is known so that appropriate additional mitigation measures may be implemented. Potential project locations are not known at the lease sale phase.
The Northstar DEIS found that the Northstar project stood a 23% to 26% chance of one or more spills greater than 1,000 barrels (42,000 gallons) occurring over the fifteen-year life of the Northstar project. (Northstar DEIS at 8-37). According to the U.S. Minerals Management Service, existing and potential future Outer Continental Shelf oil and gas development stands an 87 to 98 percent chance of a large oil spill (greater than 1,000 barrels). (Northstar DEIS at ES-97). DNR cannot simply ignore these findings by the Corps and MMS, and the PBIF cannot simply sweep the dramatic likelihood of offshore oil spills under the rug. According to the DEIS for the Northstar project, the offshore pipeline for Northstar pipeline leak detection system would not detect a leak of less than 0.15% of the flow volume. (Northstar DEIS at 8-36; see also Northstar FEIS at 8-37). Therefore, based on a maximum oil flow rate of 65,000 barrels of oil per day through the pipeline, approximately 100 barrels of oil per day could be released without detection. (Northstar DEIS at 8-36; see also Northstar FEIS at 8-37). Because the offshore pipeline will be beneath sea ice for nine months of the year (effectively preventing visual monitoring), and because under-ice currents would push oil toward shore (effectively spreading oil far and wide, see PBIF at 2-23), oil from such a chronic leak could have dramatic consequences. This is compounded by the fact that visual detection is difficult or impossible in the dark or during storms. See Anchorage Daily News, 2-11-99 at A1, "Extra Precautions Get the Oil Out." Given the high risk of catastrophic oil spills, and the nearly certain risk of chronic under-ice spills, oil development premised on the use of subsea oil pipelines is not in the state's best interests.	The Northstar EIS is applicable only to the proposed project. The information gained through Northstar's project review and through monitoring its operations will likely be applied to any future projects that might be proposed for other areas in the Beaufort Sea. However, detailed risk assessments cannot be accurately made at the lease sale phase due to the large number of unknown factors. There is not a high risk of a catastrophic oil spill. A spill of 100 bbl would not be classified as a catastrophic spill. MMS, in preparing their oil spill estimates, does not even consider spills less than 1,000 bbl as a large spill. Only those spills that are large enough to travel long distances on the ocean surface and that could persist several days or longer are appropriate for their simulation model. The 1,000 bbl cutoff meets this requirement. Only one crude oil spill greater than 1,000 bbl has occurred on the North Slope since 1970. Based on worldwide statistics, MMS estimates a 19 percent probability of one or more pipeline ruptures or leaks releasing 1,000 bbl or more over the life of the project (15 years). Historic OCS spill rates indicate that of 12 pipeline spills greater than 1,000 bbl that occurred in the OCS area between 1964 and 1992, anchor damage caused seven, hurricane damage caused two, trawl damage caused two, and pipeline corrosion caused one. These would not be applicable to Northstar because the pipeline would be buried and boat traffic is minimal. If anchor and trawler damage is eliminated, it is reasonable to expect the chance of an oil spill occurring to be reduced accordingly. Adjusting for anchor and trawler events suggests the probability of other pipeline events is approximately 5 percent. This approximation does not attempt to compensate for different events among OCS regions (e.g. ice keel in the Arctic verses slope stability in the Gulf of Mexico). The Northstar EIS concludes that a spill greater than 1,000 bbl may not occur. In fact there is a greater

	likelihood of it not occurring than there is of it occurring. The Northstar pipeline will use the Supervisory Control and Data Acquisition (SCDA) the leak detection system and will also be checked periodically by inspection pigs. Additionally, visual surveys will be performed to detect chronic leaks below the threshold of the SCADA system. Weekly aerial surveillance will be performed during the summer over the offshore and onshore pipeline routes. In the winter holes will be drilled through the ice over the pipeline to search for leaks. The state prefers subsea pipelines because the risk of a spill from them is lower than from other transportation methods. See the transportation discussion in Chapter Six.
B. In the section titled "Oil Spill History and Risk," the PBIF fails completely to assess the risk of oil spills as outlined by the Northstar DEIS and FEIS from oil production and transportation in these remote and risky areas. If the PBIF does not analyze the known risks of oil spills from subsea pipelines, it is impossible to determine whether the lease sale is in the state's best interests.	Both the DEIS and FEIS for Northstar have been reviewed. The extensive review and documentation for Northstar project is an example of what level of analysis can be conducted at the permit phase when details are known for a specific project. The Spill History and Risk discussion in Chapter Six is appropriate for the lease sale phase.
In the section on the regulation of oil spill prevention and response, the PBIF merely recites relevant statutory and regulatory sections. (PBIF at 6-26 to 6-31). For instance, the PBIF recites the 72-hour response standard found in AS 46.04.030(k)(2), yet it fails to address known difficulties in responding to oil spills in broken ice scenarios within this time frame. This section of the PBIF completely fails to acknowledge or address a recent report carried out for Alaska Clean Seas by S.L. Ross Environmental Research, "Evaluation of Cleanup Capabilities for Large Blowout Spills in the Alaskan Beaufort Sea During Periods of Broken Ice."	Chapter Six describes spill prevention and response laws and regulations and has been updated to reference the S. L. Ross report. The BIF also cites Alaska Clean Seas Technical Manual which provides possible response tactics for specific scenarios. The reader is referred to these documents for more detailed information. Cleanup in broken ice is discussed in Chapter Six. See also response below on cleanup in broken ice.
The Ross report estimates a 15-day recovery period for oil blowouts of 0.6 - 5.9% of the oil during fall freeze-up, and 4.4 - 18% of the crude during spring breakup broken ice conditions, depending on extent of ice coverage. The DEIS for Northstar acknowledges that oil spill response actions	These reports provide estimates based on models. Additional measures have been recommended for the Northstar project. Such detailed stipulations can only be developed when project details are known. This is not applicable to the lease sale phase.

could be delayed or hindered for over 50% of the year due to broken or unstable ice, rough seas, or high wind conditions. In effect, this means that for over half the time of BP's Northstar operation, or any other project in the Beaufort Sea using subsea pipelines, the project would have no adequate oil spill response available.	
The PBIF restates the Alaska regulation that requires operators to plan to be able to recover a certain amount of spilled oil (the "Response Planning Standard," or RPS) within 72 hours. (PBIF at 6-38). For exploration and production facilities, the RPS from an uncontrolled well blowout is 5,500 barrels per day. The PBIF concludes, however, that "[t]he RPS can be met in open water and solid ice conditions; however, broken ice conditions present special problems." (PBIF at 6-38). DNR fails to specify what "special problems" exist from broken ice spill response, other than summarily stating that "[c]onventional booms and skimmers have difficulty working efficiently among the broken ice." (PBIF at 6-38).	The response planning standard deals with mechanical cleanup techniques. Mechanical response equipment includes boom and skimmers and earth-moving equipment. These methods work well in open water and on solid ice, and models in the S. L. Ross report indicate that responders can meet the 72-hour mechanical cleanup standard. Broken ice conditions cause problems when the ice reaches concentrations that interfere with the safe movement of vessels or the positioning of boom or the operation of skimmers. The accumulation of broken ice within a boom could break the equipment. A skimmer could become clogged with pieces of ice. Responders believe that they can respond in lower concentrations of broken ice where they can move the ice away from skimmers. Research and development is underway on a skimmer that will be able to operate in broken ice. Non-mechanical response methods, such as in situ burning and dispersants could be used in broken ice. They have been tested in pits; however, there has never been a test on a real spill since there has not been a spill in the Beaufort Sea.
Thus, the PBIF concludes, "The analysis indicates that mechanical methods cannot recover sufficient quantities of spilled oil to meet the state's required 72-hour RPS standard." (PBIF at 6-38). With this statement, the DNR is admitting that the oil spill response required by state law and regulation is impossible. Clearly a lease sale premised on such dubious technology is not in the state's best interests.	See the above response. Prevention technology, continued research and development regarding mechanical and non-mechanical response equipment and techniques, project-specific mitigation measures, training programs, regularly conducted drills, and intensive monitoring by government agencies combine to reduce the risk of a major oil spill in the Beaufort Sea to acceptable levels.
The PBIF should note that most of the areas proposed for leasing in this areawide sale would be even further from centers of logistical coordination, and cleanups would likely be even less effective. Most of the areas proposed for leasing, therefore, are not even on the map of Alaska Clean Seas response. In addition, we incorporate by reference the	Most of the areas are not on the map because there is no project or development proposed and no existing infrastructure to pose a risk. If something is proposed, appropriate spill-response will be addressed at that time. Comments on Northstar are project-specific and cannot be specifically applied to the areawide

comments of Greenpeace submitted to the State of Alaska on September 30, 1998. (See Greenpeace, Inc., "Comments on the Draft Environmental Impact Statement, Beaufort Sea Oil and Gas Development/Northstar Project," August 31, 1998.).	lease sale except in the general sense of concern for the environment. The Beaufort Sea is within Alaska Clean Seas' area of response. Detailed spill prevention and response plans must be approved by the federal and state governments before a proposed project is allowed to operate. The Northstar project is a prime example of the review process that any other future developments will have to go through.
Finally, in the PBIF's section on Cleanup and Remediation, there are no specific offshore cleanup methods discussed. In the chart, "Objectives and Techniques for Cleaning Up Crude Oil in Terrestrial and Wetland Ecosystems," the PBIF completely fails to consider offshore cleanup methods. (See PBIF at 6-39 to 6-41). Again, we incorporate by reference the attached Greenpeace comments concerning the difficulty of cleaning up oil spills in offshore areas of the Beaufort Sea. (See Greenpeace, Inc., "Comments on the Draft Environmental Impact Statement, Beaufort Sea Oil and Gas Development/Northstar Project," August 31, 1998.	The chart was included to describe cleanup techniques that might be used if spilled oil were to come ashore. Some of those techniques, such as snow removal and ditch digging might be applied to spill response on solid ice, since such a spill could be effectively treated as an onshore spill. Chapter Six refers the reader to Alaska Clean Seas' Technical Manual and industry C-plans for specific descriptions of offshore response techniques.
The final best interest finding should include detailed scenarios for prevention, containment, and full clean up of oil spills and leaks in times of open water, shore-fast ice, and broken ice.	See the above response. Scenarios are too speculative at the lease sale phase when project-specific information is not known. It is not necessary for the Finding to include response tactics for the myriad of conditions that might or might not occur. Instead Chapter Six refers the reader to other documents that contain this kind of information.
Also, DNR should acknowledge the practical difficulty that oil companies will have in responding to an oil spill or other problems during extreme winter conditions in the proposed sale area. In a recent situation in Valdez, oil producers decided to push the tanker loading despite high winds, however, rather than further shut down production because closing wells might endanger workers in the North Slope's extreme cold, according to Alyeska. What planning or structure is in place to overcome these considerable (and for the North Slope, rather routine) weather obstacles?	The Finding acknowledges the challenges facing oil spill responders in Chapter Six. Project-specific planning occurs during the development phase, not at the lease sale phase.
In Unocal's recent spill in the Kenai National Wildlife Refuge, Unocal and the state were unable to clean up the spill on land in winter --	ADNR's spill contingency coordinator monitored the Unocal spill. Unocal mounted a very effective spill response and cleanup effort.

presumably the most advantageous circumstances in which spills can be cleaned up. Yet Unocal and DEC put off cleanup until spring. The problems encountered in this spill should be analyzed and discussed in the PBIF as they are highly likely to resurface on the North Slope.	They did cleanup oil. When the operation reached a point of diminishing returns, they secured the area and returned in the spring to finish. The ADEC and the USF&WS monitored the response from the beginning to the end. Chapter Six includes a description of onshore cleanup techniques for various types of arctic terrain.
C. In light of the importance of considering cumulative impacts at the initial lease or permit stage, and of the outstanding environmental values of the proposed Beaufort Sea Areawide sale area, DNR's treatment of cumulative impacts in the PBIF is insufficient.	ADNR has met the statutory requirements of a best interesting finding as required under AS 38.05.035. This statute requires ADNR to discuss the reasonably foreseeable cumulative effects of oil and gas activity on sale area resources and people (See Chapters Five and Six). See Chapter One for the statutory requirements of a best interest finding.
There is no quantification of existing pollution sources. Impacts to water, air, and land from existing development are quantified and accessible. DNR does not mention or analyze the impacts of *existing* Beaufort Sea oil exploration and development at all.	Scientific studies of the impacts of development projects on land and waters of the North Slope as well as on other resources have been conducted over the years and are referenced where appropriate in the text (Ex: Chapter Five). Impacts of existing development are considered in the cumulative effects assessment.
Impacts from activities associated with the Beaufort Sea Areawide sale, including expected oil spills and discharges to water, air, and land are foreseeable and capable of estimation. DNR has an affirmative duty to study and consider the cumulative impacts of existing, planned, and future Beaufort Sea oil exploration in determining whether the lease sale is in the best interests of the state.	In Chapter Six, ADNR discusses Oil Spill History and Risk oil spill history and risk in general terms, citing MMS statistics for spill probabilities based on past OCS experience. ADNR also discusses the reasonably foreseeable cumulative effects in Chapter Five, as required by AS 38.05.035(g)(vi). ADNR balanced the potential benefits and the possible risks of the sale and concluded the sale is in the state's best interest.
In the alternative, DNR could wait until appropriate federal agencies have performed an adequate cumulative impact analysis, and then customize it to comply with state law and regulations. This was presented to the US Army Corps of Engineers regarding Alpine project. See Memorandum in Support of Plaintiffs Motion for Summary Judgement, Northern Alaska Environmental Center v. U.S. Army Corps of Engineers, A98-0217-CV (HRH). DNR should hold off with this lease sale until it or a responsible federal agency has prepared a comprehensive cumulative impact analysis of North Slope oil development. Only then will DNR be able to determine whether the cumulative impacts of existing,	The state legislature has vested authority with ADNR to assess the impact of reasonably foreseeable exploration, development, production, and transportation activities. ADNR has complied with state law by considering the reasonably foreseeable cumulative effects of the sale in Chapter Five, as required by AS 38.05.035(g)(vi), and concluding that with the imposition of Mitigation Measures and Lessee Advisories, and other statutes and regulations the sale is in the best interests of the state.

planned, and future North Slope and Beaufort Sea oil development are acceptable and in the state's best interests.	
D. The "Important Bird Habitat" and "Important Wildlife Habitat" graphics fail to include the habitats of many of the species discussed.	Stock abundance and status information is presented in the finding text. Graphic illustrations are included to enhance presentation of the information that has been incorporated into the text.
Maps depicting bird habitat fail to designate specific habitat areas used by marine bird species.	Figures 3.2A-C have been improved. The most recent information has been incorporated into the text.
Figure 3.2.A does not include Teshekpuk Lake brant molting and staging habitat as important bird habitat, nor does it show nesting areas for spectacled eider, Yellow-billed loon, or other important bird species.	Geographic information as to brant, eider, and loon distribution and migration has been added to the finding.
Figure 3.2.C does not denote the importance of bird habitats in the Arctic Refuge, including oldsquaw and other duck molting in lagoons, Camden Bay, and Demarcation Bay.	Oldsquaw and other duck molting areas are described in the text of Chapter Three. In some cases maps of habitat areas are included to complement this discussion by showing general distribution of broad categories of wildlife.
Snow goose fall staging habitat should be shown, along with important passerine and shorebird habitats along riparian and river corridor habitats.	See response above.
The PBIF fails to show the caribou calving area and post-calving and insect relief habitats for the Porcupine Caribou Herd. This habitat should be shown all the way to the Canning River Delta and must include the recognition that the herd uses barrier islands and offshore areas as well as areas onshore. (See Photo and map showing caribou use of barrier island habitat, attached to brief of *amicus curiae* The Wilderness Society, et al. in United States of America v. State of Alaska, U.S. Supreme Court, No. 84 (1996)).	Caribou calving areas and insect relief areas are shown in Figures 3.3.A, B and C. The best interest finding recognizes some use of the barrier islands by caribou. According to ADF&G, neither the barrier islands nor offshore areas are considered important caribou habitat. See Chapter Three.
Recent survey data results are also needed. See Garner, G.W. and P.E. Reynolds, 1986, "Final Report, Baseline Study of the Fish, Wildlife, and their Habitats (Vol. 1), Arctic National Wildlife Refuge Coastal Plain Resource Assessment, Section 1002C, ANILCA," U.S. Fish and Wildlife Service, Anchorage, at 215-235.	ADNR reviewed this study for any information relevant to fish and wildlife resources of the sale area. It is cited as USDOI, 1986 in Chapter Three. More recent (1998) information regarding Porcupine Caribou Herd distribution and calving areas was also consulted. It can be found at the USF&WS ANWR web http://www.r7.fws.gov/nwr/arctic/pchmaps.html.
The PBIF frequently fails to resolve disagreements in the body of scientific knowledge regarding impacts to wildlife. DNR should independently examine the data	ADNR is required to consider and present conflicting scientific studies and reach a conclusion on whether the sale is in the state's best interests. In making these findings, ADNR

and come to independent conclusions, instead of simply relying on industry studies.	considers information from various sources, some of which can be inconsistent. ADNR considers the facts available at the time of preparation of the finding and discuss material issues raised. ADNR weighed all of the information and determined that potential adverse effects to caribou can be adequately mitigated. ADNR analyzes all relevant studies. Often the only body of knowledge came about from industry project-related monitoring. ADNR balances opposing views in determining risks and impacts. ADNR relies on the best professional judgement of qualified academic professionals and the knowledge of local residents.
DNR fails to conduct any analysis of the reasonably foreseeable cumulative effects on the fish, wildlife, and their habitats in the area. The discussion in Chapter 5 is vague and overly optimistic. The FBIF must include more than a cursory recital of facts, and must undertake an analysis of the cumulative effects.	This best interest finding complies with each of the requirements set out under AS 38.05.035(g). The finding clearly discusses the reasonably foreseeable cumulative environmental impacts of the sale. See Chapters Five and Six. This includes a discussion of the potential cumulative impacts that can reasonably be determined at this time with the information available, and takes into consideration existing development. The analysis provides the director with enough information about the potential for impacts to make a best interest determination.
The PBIF states that in the event of an oil spill, some species of lower trophic-level organisms could require "years to recover." (PBIF at 5-15). Because these species are a primary food source of endangered bowhead whales, the cumulative effect of an oil spill in this area could be a dramatic crash in bowhead populations.	It is unlikely that an oil spill entering the substrate would have any population-level effect on either the bowhead whale food source or the whale itself. First, primary bowhead whale feeding areas are outside of the sale area (See Chapter Three). Second, the finding states that if oil entered the substrate, some specie communities would require years to recover. These species include epibenthic organisms and the number of organisms affected would be limited to the area oiled. Copepods and euphausids are the principal foods of bowhead whales, not epibenthic species. Copepods are nearly microscopic free-living zooplankton and their entire life cycle can be completed within two weeks. Euphausids are a small group of pelagic (in water column) crustaceans, commonly called krill. Epibenthic invertebrates such as mysids and gammarid amphipods occasionally are dominant foods, but are usually consumed

	incidentally while whales are feeding on copepods and euphausids. Third, the Western Arctic bowhead whale stock is healthy and growing approximately 3.2 percent/year and is therefore less vulnerable to mortality associated with an oil spill. The department has determined that while there may be some effect on bowhead whales, an oil spill could not create a dramatic crash in the Beaufort Sea bowhead population.
Regarding cumulative effects to fish species, the PBIF concludes that "no scientific evidence currently is available to indicate if industrial noise and disturbance in an area for a number of years would adversely affect fisheries in those areas." (PBIF at 5-20). DNR has a responsibility to seek such evidence before it can determine whether the introduction of such industrial disturbance is in the state's best interests.	ADNR has fulfilled its responsibilities for surveying all known data at the time of this finding. After considering all the available data regarding impacts from industrial noise, ADNR concluded that impacts can be mitigated by restricting the use of explosives in open water or in close proximity to fish-bearing lakes and streams. While ADNR reviews all available studies, ADNR does not conduct scientific studies.
The PBIF comes to the conclusion that reasonably foreseeable marine discharges of drilling muds, cuttings, and produced waters would have a "temporary" cumulative effect on fish. (PBIF at 5-20). The very nature of a cumulative effect is that it must be viewed in the context of a longer time frame, where its impact accumulates with other effects. To simply conclude that cumulative effects would be temporary shows a lack of understanding of the required analysis.	The sentence has been corrected to state that effects to fishes from drilling and discharges likely would be local and temporary. Impacts to fish will be minimal because discharges in shallow, ice-covered waters are restricted and the likelihood that fish would be exposed to discharges during their critical overwintering period would be reduced. Restricting discharges will lessen cumulative impacts to fish.
The PBIF states (without citation) that "hunting pressure and loss of high quality tundra from oil and gas development is not a primary factor in the rise and fall of caribou populations." (PBIF at 5-26). It then, however, notes that according to the Alaska Department of Fish & Game, "caribou, particularly during calving, may be more affected by oil development than previously thought." (PBIF at 5-26). It also notes that "[i]n a cumulative sense, the impaired access [by caribou] to portions of their habitat [due to oil development] is considered to be a functional loss of habitat." (PBIF at 5-27). The PBIF also states that the cumulative effects on caribou distribution are likely to have long-term effects within about 4 km of onshore oil and gas facilities, yet it finds that this potential effect may not be directly	ADNR is required to consider and present conflicting scientific studies and reach a conclusion on whether the sale is in the state's best interests. In making these findings, ADNR considers information from various sources, some of which can be inconsistent. ADNR considers the facts available at the time of preparation of the finding and discuss material issues raised. ADNR weighed all of the information and determined that potential adverse effects to caribou can be adequately mitigated. In previous sales, ADF&G has asked DNR to include more study results and consider conclusions of earlier researchers as well as those that oppose earlier researchers' conclusions as to the impacts of oilfield development on caribou. Scientists may

attributable to oil development "due to the great natural variability and productivity of caribou populations." (PBIF at 5-29). Given circular reasoning such as this, along with substantial disagreement in the scientific community about impacts of oil development on caribou, it is impossible to determine whether the proposed lease sale is in the state's best interests or how DNR weighs this uncertainty.	disagree about the impact of oilfield development on caribou, however, ADNR determined that the character and impact of this offshore sale, with the mitigation measures will minimize impacts on the caribou.
DNR notes that studies show that bowhead whales are avoiding the main industrial area of the Canadian Beaufort Sea; that bowheads begin to avoid industrial noise sources at distances as great as 6 to 12 miles; and states, "an increase in sound levels could lead to a reduction in the communication and feeding ability" of bowhead whales. It then concludes that there is "insufficient evidence" to indicate whether industrial activity in an area for a number of years would adversely affect bowhead whale use of the proposed sale area. (PBIF at 5-36). In fact, the opposite conclusion is the only reasonable one. Given the information available to the DNR about impacts to bowheads from industrial activities, the proposed lease sale is not in the state's best interests.	Studies indicate that an increase in sound levels (at close range) could lead to a reduction in the communication and feeding ability of bowhead whales. The data on short-duration (seasonal) events is more conclusive regarding behavioral changes than for the long-term. Whale behavior monitoring results from recent seismic surveys in the Beaufort Sea during the fall migration suggest avoidance reactions are not strong enough to yield population-level impacts to bowheads (See NOAA letter to Ken Boyd, Director, DO&G, 3/4/99). Seismic survey programs are tailored with stipulations to mitigate impacts to migrating whales (See Chapter Five, Effects on Bowhead Whales from disturbance). For example, last year, whalers and seismic operators formed a conflict avoidance agreement to avoid interference with the fall harvest and with the bowhead migratory path. Whaling was successful and the monitoring effort provided valuable information on bowhead reaction to seismic noise while migrating. These and other successful mitigation techniques will be used in future permitting.
E. The proposed Beaufort Sea areawide lease sale will allow intensive industrial activities in polar bear habitats that the U.S. committed to protect in the "Agreement on the Conservation of Polar Bears" signed by all five Arctic nations having polar bears, and the PBIF completely fails to address this impact. (See U.S. Minerals Management Service, Final Environmental Impact Statement, "Beaufort Sea Planning Area Oil and Gas Lease Sale 170" February 1998.)	ADNR's information does not indicate that leasing will affect implementation of this treaty or in any way restrict USFWS from carrying out the provisions of the MMPA. The sale itself does not authorize any industrial activity. Furthermore, the record of low mortality associated with North Slope operations over the last 30 years shows impacts to polar bears are effectively mitigated.
Polar bears moving across the ice to reach den sites on land would likely travel directly through the offshore areas of proposed drilling, thereby increasing their chances of	Measures to protect polar bear denning and habitat are included in the decision (See Mitigation measure 23). In addition, it is common practice for North Slope operators to

conflict with humans.	prepare bear interaction plans. Moreover, all personnel are required to undergo a training program which includes education on bear behavior and interaction (See Mitigation Measure 13).
The support activities for exploratory drilling such as fuel delivery could disturb dens and oil spills could have catastrophic effects on bears. Future exploration and long-term development activities could cause permanent destruction or degradation of polar bear habitats.	Ice road routes are selected by industry, ADNR, ADF&G, the NSB, and USF&WS with the aim to avoid known dens and denning habitat. Standard permit conditions require consultation with USFWS under ACMP General Concurrence-34, to avoid known dens.
In 1985, a polar bear died from drinking ethylene glycol in the general area of oilfield development. Another polar bear was shot during the drilling of an offshore well in the Winter of 1990. These deaths occurred despite regulations and what was purported to be the most rigorous monitoring program ever for North Slope exploration.	According to USF&WS, since oilfield development began on the Arctic North Slope, three polar bears have died in the vicinity of operations. ADNR believes the mortality avoidance track record is exceptional. Only two polar bears have died as a direct cause of industry activity. The ethylene glycol death is a possible third. In the last five years, USF&WS issued 43 Incidental Harassment Authorizations for polar bears on the North Slope (See Chapter Five, polar bears). In that time, only 12 bears were sighted and there were no mortalities.
Heavy equipment tracked within 700 feet of the den even though regulations required that polar bear dens be avoided by 1/2 mile.	The dens have to be “known” to be avoided, otherwise steps are made to avoid suitable denning habitat, such as coastal and river bluffs.
The PBIF states, "Disturbance from human activities, such as ice road construction and seismic work, may cause pregnant females to abandon dens early. Early abandonment of maternal dens can be fatal to cubs." (PBIF at 5-34). DNR states that it expects only a one-generation disturbance effect on polar bears, (PBIF at 5-34) although this conclusion is completely unexplained and therefore arbitrary. DNR then relies on "existing requirements" under the MMPA to prevent excessive disturbance, although it is uncertain to what DNR is referring. DNR has an independent authority and duty to prevent activities that will harm polar bears, and reliance on the MMPA is simply inadequate.	Mortality is low and insignificant. ADNR does not simply rely on MMPA and USF&WS. If a project is proposed that includes activities in close proximity to areas frequented by bears, ADNR encourages the lessee through Measure 22, to prepare and implement interaction plans. Regarding provisions of the MMPA, to comply with the requirements of the “incidental take” regulations, oil and gas activities in Important Habitat Areas in the Beaufort Sea are subject to a Letter of Authorization (LOA) from the USF&WS Regional Director of the Alaska Region. Nearly the entire sale area has been identified as an Important Habitat Area. The decision to request a LOA is up to the individual operator, although they are liable for incidental takes in the absence of a LOA. LOA’s specify terms and conditions appropriate for the conservation of polar bears, such as interaction plans and detection efforts. Through the LOA, USF&WS has the authority to require and specify the type of interaction plans. LOA’s

	are tailored to the individual project and take into consideration factors including the time period and specific location where the activity is to take place. The conclusion that the polar bear loss associated with disturbance would be replaced within one year by reproduction is based on the historic low industrial mortality rate (one every ten years) and because the Beaufort Sea polar bear stock is healthy and could absorb such a small loss.
The U.S. Fish and Wildlife Service estimates that only 140 female polar bears of the entire Beaufort Sea population den each year. Because female polar bears have one of the slowest reproductive rates of any mammal, producing only five litters in their lifetime, any industrial activity that interferes with reproductive success could negatively affect this population. The stated level of disturbance to polar bears is unacceptable for habitats in the Arctic Refuge that could be adjacent to a landfall site at the western Refuge boundary.	At this time it is not known where a landfall site will be. Only after one is selected will federal state and local agencies be able to assess the level of disturbance to polar bears. Development will be subject to the mitigation measures, which restrict aircraft overflights, regulate waste management, and require lessees to avoid dens. A Lessee Advisory encourages the development of bear interaction plans. Furthermore, lessees must comply with the provisions of the MMPA as well as the NSBCMP.
The level of harm described by the PBIF resulting from construction of landfall sites, due to oil spills, and from other industrial activity contravenes the spirit of the international treaty which calls for protecting denning, feeding, and migration route habitats of polar bears. The treaty obligation resulted in amendments to the MMPA which clarified the USF&WS's duty to conserve essential polar bear habitats.	The best interest finding describes potential impacts from individual activities. Cumulative effects can occur from one or more of the same activities occurring simultaneously. USF&WS, not ADNR is charged with implementing provisions of the MMPA as amended by treaty obligations regarding polar bear conservation. ADNR suggests forwarding any treaty non-compliance evidence to the U.S. State Department.
The PBIF states that polar bears are "extremely sensitive to external and internal oil contamination." (PBIF at 5-34) and describes potential effects from spills. Yet only relies on the USF&WS, which has the regulatory authority to prevent the taking of polar bears, to mitigate such damage from oil spills. But given that there is a 95 percent chance of a large oil spill in the offshore state and federal waters of the Beaufort Sea (see Northstar FEIS at ES-106), and given the difficulty of cleaning up such a spill (see discussion supra Part III.B), it is very likely that polar bears will be seriously harmed by an oil spill from the proposed sale area.	There is no evidence to support the claim that "it is very likely that polar bears will be seriously harmed by an oil spill from the proposed sale area." Most bears are not in the sale area in any given moment, but are more likely found near the pack ice shear zone beyond state waters. Some individual bears may be harmed or killed in the localized area of an oil spill. No significant population-level effects on Beaufort Sea polar bears are likely to result from any foreseeable activity in the sale area. Spill risks developed for Northstar are based on site-specific information. It is not a "given" that there is a 95 percent chance of a large oil spill. See previous spill cleanup responses.

F. The PBIF must include any facts or issues that are known to the director or of which the director is made aware during the administrative review which are material to a determination of whether the lease sale is in the state's best interests. AS 38.05.035(e)(1)(B)(ii)-(iii). Issues of global climate change were raised before DNR in comments from Greenpeace in response to DNR's third call for comments. (See PBIF at A-8). Consideration and discussion of these issues, however, is completely absent from the PBIF. Because climate change was brought to DNR's attention in the administrative comments, and because it is material to the question of whether this lease sale is in the state's best interests, DNR must consider it in the final best interest finding.	The finding must consider the facts known to the director at the time of the preparation of the finding and discuss the material issues that were raised during the period allowed for public comment. While Greenpeace raised global warming during the call for comments, speculation on the theory of global warming is not material to a determination of whether the lease sale is in the state's best interests. There is widespread disagreement within the scientific community regarding the causes of the current warming trend. The current warming trend is taking place on a global scale. Thus, the burning of fossil fuels anywhere in the world could affect the climate in Alaska. It is impossible to separate out the effects of this lease sale from all the other events taking place around the world or to assess what this sale's contribution to global warming might be.
DNR should analyze the potential contribution of greenhouse gas emissions from the anticipated oil development, processing, transportation, and consumption of crude oil and its products.	It is not known what, if any greenhouse gas emission volumes would be generated following the sale. The size, number, type, and extent of future facilities is subject to future permitting and beyond the scope of this best interest finding under AS 38.05.035(h).
As global climate change continues, there will be changes to the physical geography of the North Slope and Beaufort Sea including onshore and offshore permafrost stability, and submersion of barrier islands, increase in severity of storms and coastal erosion, and possibly periods of longer broken sea ice.	Changes in or the status of the natural environment are considered routinely in oil and gas development project engineering analyses prior to facility design, construction and operation. Chapter Five discusses geophysical hazards in the sale area and some facility design considerations. Permafrost stability and other geophysical hazards including coastal erosion are very site-specific. It is impossible to predict at the lease sale stage the specific location, the specific physical hazards that may or may not develop, and the type of facility and design that may be proposed.
G. BP America's January, 1999 west coast term price for Alaska North Slope crude was only $9.37 per barrel. Offering state lands for lease during times of depressed oil prices is not in the state's best interests.	Energy prices are volatile, ranging in this decade from approximately $9 to $30 per barrel. Since hitting their low, oil prices have recovered over 60 percent to approximately $18 bbl. The bonus bid is a small part of the revenue the state realizes from oil and gas development. Over time royalty payments and taxes generate the majority of revenue from a lease. The price of oil during production has a far greater impact on state revenue than the price at the time of a lease sale. It is impossible to predict what energy prices might be at the time of production. Furthermore, the state sets a

	minimum bid per acre. This assures tracts won't be leased at "distress sale" prices.
In response to decreased industry interest due to low oil prices, the U.S. Minerals Management Service recently deferred three Alaska outer-continental shelf lease sales, in Cook Inlet, the Gulf of Alaska, and the Chukchi Sea/Hope Basin areas. Instead of further stressing oil producer's investment in the state, DNR should follow the lead of MMS and wait until there is more industry interest in leasing new areas. The state should wait until it is able to get what the leases are truly worth. To do otherwise is not in the state's best interests.	ADNR believes the market will bear the real long-term value of the leases. Industry supports areawide leasing (see letters) and urges the state not to defer or delete acreage. ADNR, however is deferring the leasing of all tracts from Barter Island to the Canadian border, and from Pt. Barrow to Tangent Pt., off Dease Inlet. It is unlikely that these tracts on the eastern and westernmost portions of the sale area would be immediately subject to exploration and development.
H. The proposed Beaufort Sea Areawide is inconsistent with the ACMP and NSBCMP. DNR's ACMP Proposed Consistency Analysis (CA) violates standards of the Alaska and the North Slope Borough coastal management programs. We incorporate herein by reference all of the substantive comments raised above inasmuch as they relate to the issue of consistency with the ACMP. We also incorporate by reference the substantive comments made by Greenpeace in its comments to the Corps of Engineers on the permit for the Northstar project, and in its comments to the Alaska Division of Governmental Coordination on the Northstar Project's consistency with the ACMP. (See Greenpeace, Inc., "Comments on the Beaufort Sea Oil and Gas Development, Northstar Project -- Alaska Coastal Management Program consistency and other state reviews," September 30, 1998.). Finally, we incorporate by reference Trustees for Alaska's comments on the PBIF for the Cook Inlet Areawide Oil & Gas Lease Sale. (See Trustees for Alaska, et al. "Comments on Cook Inlet Areawide Oil and Gas Lease Sale," June 29, 1998.).	The state found the North Star project consistent with the ACMP, based on a review of the project by the Alaska Departments of Environmental Conservation, Fish and Game, and Natural Resources, and the North Slope Borough coastal district. The consistency of Northstar is a separate issue from the consistency of the Areawide Beaufort Sea Lease Sale. Northstar is a site-specific project proposal based on known reserves, and existing technology.
H.1. The Proposed Beaufort Sea Areawide is Inconsistent with the ACMP Coastal Development Standard.	See response to Trustees for Alaska et al., comment reprinted in its entirety in Proposed ACMP Consistency Determination for Proposed Oil and Gas Lease Sale Beaufort Sea Areawide 1999, dated April 27, 1999.
H.2. The Beaufort Sea Areawide is Inconsistent with the ACMP Subsistence Standard.	See response to Trustees for Alaska et al., comment reprinted in its entirety in Proposed ACMP Consistency Determination for Proposed Oil and Gas Lease Sale Beaufort Sea Areawide 1999, dated April 27, 1999.

H.3. The Beaufort Sea Areawide is Inconsistent with the ACMP Habitat Standard.	See response to Trustees for Alaska et al., comment reprinted in its entirety in Proposed ACMP Consistency Determination for Proposed Oil and Gas Lease Sale Beaufort Sea Areawide 1999, dated April 27, 1999.
H.3.a. DNR has not Demonstrated a "Significant Public Need" for this Lease Sale.	See response to Trustees for Alaska et al., comment reprinted in its entirety in Proposed ACMP Consistency Determination for Proposed Oil and Gas Lease Sale Beaufort Sea Areawide 1999, dated April 27, 1999.
H.3.b. DNR has not Demonstrated that There are No Feasible Alternatives to this Lease Sale.	See response to Trustees for Alaska et al., comment reprinted in its entirety in Proposed ACMP Consistency Determination for Proposed Oil and Gas Lease Sale Beaufort Sea Areawide 1999, dated April 27, 1999.
H.3.c. DNR has not Demonstrated that it Took All Feasible and Prudent Steps to Maximize Conformance With the Habitat Standard.	See response to Trustees for Alaska et al., comment reprinted in its entirety in Proposed ACMP Consistency Determination for Proposed Oil and Gas Lease Sale Beaufort Sea Areawide 1999, dated April 27, 1999.
H.4. The Beaufort Sea Areawide is Inconsistent with the NSBCMP Goals and Policies.	See response to Trustees for Alaska et al., comment reprinted in its entirety in Proposed ACMP Consistency Determination for Proposed Oil and Gas Lease Sale Beaufort Sea Areawide 1999, dated April 27, 1999.

C. Comments and Responses Prior to Preliminary Best Interest Finding

(Appendix A of Preliminary Best Interest Finding Issued December 15, 1998)

Comments submitted in response to:

Call for Comments	Proposed Oil and Gas Lease Sale	Beaufort Sea Areawide	January 28, 1997
Call for Comments	Proposed Oil and Gas Lease Sale	Beaufort Sea Areawide	December 19, 1997
Call for Comments	Five-Year Oil and Gas Leasing Program		July 12, 1996

1. Local Government

North Slope Borough, John Dunham, 6/15/98	
Recommends the following measures and advisories adopted by DO&G in Sales 86 and 87. They include, but are not limited to: The director shall consult with the NSB before permitting the siting of causeway or other structures if there are no other feasible or prudent alternatives. (NSBCMP 2.4.4(i)).	Adopted. Proposed Mitigation Measure 11 restricts and prohibits causeways. Sale 86 and Sale 87 measures are included in this proposed sale. These measures have been found to be consistent with the NSBCMP in previous lease sales.
Prohibit permit facility siting within three miles Cross Island, unless the lessee demonstrates to the satisfaction of the director, in consultation with the NSB, that development will not preclude reasonable access of subsistence hunters to harvest bowhead whales. (NSBCMP 2.4.3(b), (NSBCMP 2.4.3(d), (NSBCMP 2.4.4(a), 2.4.5.(h)).	Adopted. Proposed Mitigation Measure 16 was adopted in Sale 86. This measure has been found to be consistent with the NSBCMP and its policies in a previous lease sale.
Limit the use of explosives for seismic surveys only after the NSB has consented, after consultation with the closest affected community. (NSBCMP 2.4.3(b), (NSBCMP 2.4.4(a), (NSBCMP 2.4.6(g)).	Adopted. Proposed Mitigation Measure 1 requires the lessee to consult with the NSB prior to use of explosives. This measure has been found to be consistent with the NSBCMP and its policies in previous lease sales.
Implement consultation and dispute resolution mechanisms to review and resolve the effects of cumulative impacts. (NSBCMP 2.4.63(a) through (d), 6 AAC 80.120 & 130.	Adopted. Proposed Mitigation Measure 15 provides the structure for dispute resolution and has been found to be consistent with the NSBCMP and its policies in previous lease sales.

2. State Agencies

Alaska Department of Fish and Game, Alvin Ott, 6/15/98	
The state has consistently recommended deferral of leasing in its comments on federal OCS sales in the Beaufort and Chukchi seas. ADF&G recommends deferral of leasing in the Barrow area to reduce potential impacts to marine mammals, waterbirds, and subsistence harvest activities. Specific areas include the Chukchi Sea coast, Admiralty Bay-Dease Inlet and the Plover Islands.	The Chukchi Sea coast, Dease Inlet, and Admiralty Bay are not included in this proposed sale. The Plover Islands and state waters north and east of Pt. Barrow are included. DO&G believes that the proposed mitigation measures and lessee advisories, coupled with ACMP consistency review during permitting and local zoning approval requirements will minimize or avoid impacts to the Plover Islands.
Defer leasing in the spring lead system, including that portion that extends northeastward from Point Barrow, until industry can demonstrate the capability to clean up an oil spill in the lead system and the issue of oil and gas exploration and production noise on marine mammal movements can be resolved.	Proposed Mitigation Measure 16 prohibits exploratory drilling during whale migrations northeast of Pt. Barrow. DO&G believes that the proposed mitigation measures and lessee advisories, spill prevention technology and practices and conditions placed on oil discharge contingency plans reduce the risk of an oil spill sufficiently to proceed with leasing in the spring lead system. The impact of industrial noise on marine mammals is studied at the project level. Monitoring programs are required for activities that occur during whale migration.
The mitigation of adverse social and subsistence–related impacts may be more difficult in this area due to high subsistence use.	DO&G believes the proposed measures and lessee advisories are adequate to protect subsistence resources at the lease sale phase. In enforcing proposed Mitigation Measure 15, the division, during review of plans of operation, works to assure that potential conflicts are identified and avoided to the fullest extent possible. Options include alternative site selection, directional drilling, seismic and threshold depth restrictions, subsea completion techniques, and seasonal drilling restrictions.
Recommend the state include deferral of tracts in the Demarcation Bay to Barter Island to protect bowhead whales and subsistence harvests of whales and other resources in the area. The state recommended a similar deferral for OCS 144 and MMS enacted it.	The NSB recommended this deferral to MMS, however in its comments, the state wrote that it generally supports the use of mitigative measures in lieu of area deferrals (FEIS, V-25). While the state of Alaska implements a seasonal drilling restriction to protect whales, MMS does not. The fall and spring whale migration is generally beyond state waters, in the OCS. This feeding area east of Barter Island is almost entirely outside of the proposed sale area. The bowhead whale and its subsistence harvest is protected by proposed

	Mitigation Measures 15, 16, and 17. Additionally, proposed Lessee Advisories 1, 2, 4, 7, 9, 12, and 14 ensure whales and subsistence are protected.
Potential impacts to the TLSA from placement of onshore facilities, pipelines or other structures should be considered. In its comments on the draft environmental impact statement for the northwest planning area of NPR-A, the state recommended no surface facilities be allowed in the Goose Molting Management Area.	The TSLA is outside of the proposed sale area. However, due to high concentrations of staging and molting black brant and other waterbirds within the coastal habitat of the Teshekpuk Lake Special Area, a new measure (22b) restricts summer operations that could disturb birds.
Concerns regarding onshore facility placement and pipeline routing outlined in the discussion of waterbirds also apply to caribou, particularly in the area east of Teshekpuk Lake. Special protection measures may be instituted following completion of the FEIS.	The proposed sale does not include onshore acreage adjacent to the TSLA. Effects on barrier island caribou habitat are described in Chapter Five. Special protection measures to reduce impacts to birds can be imposed during coastal management program permit reviews.
An analysis of mitigation measures that mitigate the cumulative impacts of oil and gas activities on subsistence should be conducted to evaluate their effectiveness over time. A monitoring program should be developed to assess the cumulative effects of oil and gas development on the community of Nuiqsut. Such a program could be linked to similar activities being discussed for the Alpine project.	Historically, effectiveness of mitigation measures is reviewed periodically when industry, the public, or government regulators recognize that a measure is not consistent with law, or is no longer necessary due to new regulations or changes in technology. About every two years, mitigation measures are modified when new information warrants. ADNR looks forward to working with ADF&G and others on evaluating mitigation measure effectiveness.
We request the following measures be included in the permit terms for this sale. Upon abandonment of drilling sites, all buildings, erosion armament, production platforms, pipelines or other facilities must be removed and the site rehabilitated unless the director, DO&G, after consultation with ADF&G and ADEC, determine that such removal and rehabilitation is not in the state's best interest. This permit term had been included in earlier lease sales but has been deleted from more recent ones. Removal and rehabilitation of exploration and development facilities, including gravel pads and other structures, is necessary to return the area to a condition where environmental contaminants are not present, where surface flow, water movements, or currents approximate pre-disturbance	It is the surface land owners' right and responsibility to determine how the surface of the drill site will be restored and rehabilitated. These decisions are made prior to termination of the lease and operators are liable under this contract with the state. Paragraph 21 of the sample lease contract states that the lessee will be directed in writing by the state to remove from the leased area all machinery, equipment, tools, and materials. The lease contract also states that at the option of the state, all improvements such as roads, pads, and wells must either be abandoned and the sites rehabilitated by the lessee to the satisfaction of the state, or be left intact and the lessee absolved of all further responsibility as to their maintenance, repair, and eventual abandonment and rehabilitation. Additionally, 11 AAC 83.158(d)(3) requires that plans of operations include plans for rehabilitation of the affected leased area after completion of operations or

conditions, and where fish and wildlife and human use of these resources approximate pre-disturbance conditions. Without this permit term, the federal government will have sole control over site rehabilitation or restoration, to the exclusion of state concerns and input.	phases of those operations. DNR no longer reiterates lease contract terms as mitigation measures, which is why this permit term had been included in earlier lease sales but has been deleted.
Due to high concentrations of staging and molting brant and other waterbirds within the coastal habitat Zone I of the Teshekpuk Lake Special Area (TLSA) and other coastal habitats within the sale area, operations that create high levels of disturbance including, but not limited to, dredging, gravel washing, and boat and barge traffic along the coast, will be prohibited from June 20 to September 15 within one-half mile of coastal salt marshes along Zone I of the TLSA. The construction and siting of facilities within one mile of these areas may be allowed on a case-by-case basis if the director, DO&G and ADF&G determine that no other feasible or prudent location exists.	Adopted. See proposed Mitigation Measure 22b.
The threatened spectacled eider occurs in the proposed lease sale area. Steller's eider, now listed as a threatened species, also occurs in the area. Lessee Advisory #5 of Lease Sale 87 regarding protection of spectacled and Steller's eiders should be included in this sale.	Adopted. See proposed Lessee Advisory 5a.
The area near the Plover Islands has been identified as an important fall feeding area for bowhead whales, as well as a fall whaling area used by Barrow residents. The state's 1990 Seasonal Drilling Restriction policy should be applied to this area, as in all nearshore waters.	Proposed Mitigation Measure 17 (seasonal drilling restriction) applies to waters around the Plover Islands.
Both brown (grizzly) and polar bears occur on barrier islands and nearshore areas within the limits of Areawide Sale 1999. Because exploration and development activities would occur in areas frequented by polar and grizzly bears, we recommend lessees prepare and implement polar and grizzly bear interaction plans to avoid or minimize conflicts between bears and humans. In its March 12, 1998 comments to BLM on the draft environmental impact statement for the northeast planning area of the NPR-A, the state recommended all stipulations proposed in the DEIS, with modifications and additions suggested by the state, apply to leasing activities within NPR-A. These stipulations included requiring lessees to prepare and implement bear interaction plans.	In the interests of health and safety, it is prudent to prepare and implement bear interaction plans for operations proposed to take place in bear habitat. The subject of requiring bear interaction plans was decided at a CZMP elevation in 1995 for Lease Sale 80. It is not logical to require lessees to prepare and implement bear interaction plans prior to project proposal. If a project is proposed that includes activities in close proximity to areas frequented by bears, proposed Mitigation Measure 23 encourages the lessee to prepare and implement interaction plans. Other provisions in this proposed measure minimize the potential for bear – human conflicts. Exploration and production activities are prohibited within one-half mile of occupied

We believe such conditions also should apply to state lands.	grizzly bear dens. Den sites must be obtained from the ADF&G prior to field work. Operations must avoid known polar bear dens by one mile and known den locations must be obtained from the US Fish & Wildlife Service. Occupied dens encountered in the field must be reported and avoided by ½ mile and one mile, for grizzly bears and polar bears, respectively. Finally, proper disposal of garbage and putrescible waste is essential to avoid attracting wildlife. Under proposed Mitigation Measure 20, the lessee must use the most appropriate and efficient method to avoid attracting wildlife. Garbage and domestic combustible refuse must be incinerated. Non-burnables must be disposed of at an approved upland site.
A permit term regarding setbacks from fish-bearing waterbodies similar to that used inSale 86 should be included.	Adopted. See proposed Mitigation Measure 25.
Permit terms regarding siting of facilities and aircraft overflights for caribou and birds (Terms 22 and 23, Sale 86A; Term 2, Sale 68) for protection of these species from disturbance should be included. The ADF&G may request more stringent conditions for overflights over concentrations of spotted seals at Oarlock Island and the Piasuk River delta, and for molting geese in the TLSA upon evaluation of recent data for these species.	Adopted. Proposed Mitigation Measure 22 prohibits the siting of permanent facilities within identified brant, white-fronted goose, snow goose, tundra swan, king eider, common eider, Steller's eider, spectacled eider, and yellow-billed loon nesting and brood rearing areas. Restrictions on aircraft overflights as binding lease terms were removed because ADNR has no authority to dictate flight paths or schedules. However, proposed Lessee Advisory 6 encourages lessees to apply provisions governing aircraft operations in and near the proposed sale area to protect birds, caribou and muskoxen.
Oarlock Island is the largest spotted seal summer haulout in the Beaufort Sea, one of only two known in the Beaufort Sea. A permit term regarding protection of seals from disturbance from boat and barge traffic similar to that used in Sale 52 should be applied to this area and to the Piasuk River delta.	Adopted. See proposed Mitigation Measure 24.

3. Federal Agencies

U.S. Fish and Wildlife Service, Patrick Sousa, 6/12/98	
Requests ADNR defer oil and gas leasing for lands offshore ANWR until all issues outlined below are fully addressed. Oil discovered north of the Arctic Refuge would likely require the development of new onshore infrastructure	Development of state offshore oil and gas may not require the use of ANWR lands, thus an analysis of impacts to the Refuge's fish and wildlife and habitats from hypothetical infrastructure would be speculative. Sub-sea

near the Refuge. It would also likely require subsea pipelines which are untested in the Arctic. The Service believes that this facility and the associated production activities would pose significant risks in the form of oil spills and wildlife disturbance.	pipelines may be the safest transportation alternative. The Northstar development project, currently under construction, includes a sub-sea pipeline; the performance of which will be monitored closely. Impacts of oil spills and disturbance on fish, wildlife, and habitats are discussed in Chapters Five and Six.
It is critical that ADNR address how specific activities will directly, indirectly, and cumulatively impact the Arctic National Wildlife Refuge. Onshore facilities would likely have to provide: (1) a staging area for construction equipment, drilling equipment and supplies; (2) a transfer point for drilling and construction personnel; (3) a docking facility to serve as a base for vessels required to support offshore operations; and (4) an airfield for fixed-wing aircraft and helicopters.	This preliminary finding is written under the assumption that ANWR will not be available for support infrastructure. The location, size, and extent of onshore infrastructure needs cannot be determined at the lease sale phase. To analyze effects of the hypothetical development scenario envisioned by the Service would be speculative. Under AS 38.05.035(h), the director may not be required to speculate about possible future effects subject to future permitting that cannot reasonably be determined until a project is proposed. This includes speculation about the location and size of facilities and future environmental or other laws that may apply at the time of any development.
ADNR should review and report the measured and potential effects of petroleum development on the productivity, distribution, and habitat selection of caribou based on the published literature. Current information from ADF&G regarding changes in the CAH summer range with respect to pipeline and oil field activities should be reviewed. ADNR should reference lower caribou calf productivity and a higher frequency of adult female reproductive pauses in an area west of the Sagavanirktok River compared to east of the river (Cameron 1995). ADNR should also review the potential impacts of an oil spill(s) on coastal habitats used by the Porcupine Caribou Herd during insect relief periods.	See Chapter Five for a discussion of effects on caribou. ADNR is reviewing Cameron (1995) for incorporation into the final finding. Additionally, use of barrier island habitat by the Porcupine Caribou Herd is being studied.
Offshore human activities may force polar bears onshore thereby causing a lower rate of denning by terrestrial bears and lower overall productivity. The Service recommends that lessees be advised that polar bears may be present in the area of operations, particularly during the solid ice period, anywhere in the proposed lease sale area. Proposed operations and actions should	It is not clear how offshore activities would "force" polar bears to den onshore. Polar bears are generally attracted to human activity as they search for food. Standard industry practice is to site ice roads away from preferred denning habitat (along the coast and river bluffs). DO&G encourages the lessee through proposed Mitigation Measure 23, to prepare and implement bear interaction plans. Other provisions in this proposed measure minimize

be conducted to minimize interactions with polar bears. When actions have the potential to take polar bears, lessees are advised to obtain appropriate Letters of Authorization from the Service. Lessees are encouraged to consult OCS Study MMS 93-0008, Guidelines for Oil and Gas Operations in Polar Bear Habitats, for guidance on avoiding impacts to polar bears.	the potential for bear–human conflicts. Operations must avoid known polar bear dens by one mile and known den locations must be obtained from the US Fish & Wildlife Service. Occupied dens encountered in the field must be reported and avoided by one mile. To comply with the requirements of the MMPA, oil and gas activities in Beaufort Sea polar bear habitat are subject to a Letter of Authorization (LOA) from the USF&WS Regional Director of the Alaska Region. The decision to request a LOA is up to the individual operator, although they are liable for incidental takes in the absence of a LOA. LOA's specify terms and conditions appropriate for the conservation of polar bears, such as interaction plans and detection efforts. Through the LOA, USF&WS has the authority to require and specify the type of interaction plans. LOA's are tailored to the individual project and take into consideration factors including the time period and specific location where the activity is to take place. Finally, proper disposal of garbage and putrescible waste is essential to avoid attracting wildlife. Proposed Mitigation Measure 20 reduces the potential for interaction. The lessee must use the most appropriate and efficient method to avoid attracting wildlife. Garbage and domestic combustible refuse must be incinerated. Non-burnables must be disposed of at an approved upland site.
ADNR should address impacts resulting from potential boat and aircraft disturbance and effects of oil spill(s) on oldsquaw and other avian resources. The Beaufort Sea barrier island shorelines, lagoons, and nearshore habitats are important to molting and post-molting oldsquaw ducks. This species while stable on the Arctic Coastal Plain of Alaska has recently declined in other parts of Alaska and NW Canada.	The impacts of disturbance and the effects of oil spill(s) are discussed in Chapter Five, "Cumulative Effects. Distribution and habitat are discussed in Chapter 3, "Fish and Wildlife."
The proposed lease sale is within the breeding range of two listed species: the threatened spectacled eider and the threatened Alaska breeding population of Steller's eider. Knowledge of the distribution and migration chronology of spectacled and Steller's eiders in	Distribution and migration of Steller's eiders and spectacled eiders are discussed in Chapter Three, "Fish and Wildlife." See proposed Lessee Advisory 5a.

the Beaufort Sea is critical relative to this environmental assessment.	

4. Others

Greenpeace, Dan Ritzman, 6/15/98	
Alaska and the western Arctic are already experiencing warming at a rate three times higher than the global average, resulting in melting permafrost and glaciers and changes in the extent of sea ice. The state should analyze the potential contribution of greenhouse gas emissions from the anticipated oil development, processing, transportation, and consumption of crude oil and its products.	ADNR is not required to analyze the potential contribution of greenhouse gas emissions from the anticipated oil development, processing, transportation, and consumption of crude oil and its products under AS 38.05.035(g). To do such would be speculative and beyond the scope of this finding.
The state should also consider the economic and environmental benefits that would result from the development of climate-friendly alternatives such as wind and solar power.	ADNR is not required to discuss the economic benefits of wind and solar power under AS 38.05.035(g). To do so would be speculative and beyond the scope of this finding.
The analysis should include how current and future warming in the Arctic will affect the permafrost in the region, particularly below the Beaufort Sea. Given that any potential development will probably rely on sub-sea buried pipelines; the issue of unstable permafrost must be addressed.	ADNR is not required to analyze how current and future warming in the Arctic will affect the permafrost in the region, particularly below the Beaufort Sea under AS 38.05.035(g). This is speculative and is beyond the scope of this finding.
As global warming continues, melting glaciers and thermal expansion of the oceans could lead to a rise in sea level. ADNR should address varying scenarios of sea level rise, including a worst case scenario of submersion of offshore barrier islands.	ADNR is not required to address varying scenarios of sea level rise, including a worst case scenario of submersion of offshore barrier islands under AS 38.05.035(g). To do so would be speculative and beyond the scope of this finding.
Climate change may also result in a change in sea ice conditions. This could mean longer periods of broken ice, a condition that is extremely problematic when addressing oil spills and leaks. Arctic warming may also result in an increased incidence and severity of storms in the region, which in turn could affect the amount and size of waves, or the movement of sea ice.	This is speculative and is beyond the scope of this finding.

The BIF must discuss the combined impacts of other current federal and state lease sale activities (such as barge supply, helicopter flights, seismic survey activities on both land and offshore) and infrastructure requirements (including all temporary and permanent facilities needed, gravel fill and extraction estimates, direct and indirect habitat loss and degradation), disturbance, and air and water pollution. Quantitative data on past, present and future activities and infrastructure needs to be provided in order to conduct meaningful cumulative analysis of all impacts.	Under AS 38.05.035(g)(1)(B)(vi), ADNR is required to consider and discuss the reasonably foreseeable cumulative effects of oil and gas exploration, development, production, and transportation on the sale area. DNR is not required to "speculate" about effects of the post-lease sale activities--exploration, development, production, and transportation--that are subject to future permitting (AS 38.05.035(h)). At the lease sale stage it is impossible to predict if, when, where, how, or what kind of exploration or development might ultimately occur. Details like barge supply, helicopter flights, and infrastructure requirements cannot be determined without knowledge such as where a deposit is located, what the market is at the time, or what technology might be available. The lessee must obtain state approval of a detailed plan of operations. The proposed activity must comply with the proposed mitigation measures, coastal zone consistency review standards and other state or federal agency authorizations or permits. At the plan of operations stage potential impacts can be assessed and, if necessary, additional protective measures can be implemented.
The BIF must also analyze current federal oil and gas projects in the area including the offshore field of Endicott/Duck Island, Federal Sale 87, Sale 97, Sale 124, Sale 144, and Sale 170. Further, development proposals, such as BP's Northstar and Liberty, ARCO's Alpine Development and potential development in NPR-A must be considered.	Fields proposed for development are discussed in Chapter Two. Cumulative effects are discussed in Chapter Five. DNR does not analyze specific federal lease sales or other development projects. Because of the diverse and complex nature of these sales and projects, to do so would require DNR to speculate and address hundreds of unforeseeable occurrences or situations that may arise. AS 38.05.035 (h) is states specifically that this type of analysis is not required. Rather, DNR recognizes possible sources of activity which could affect fish and wildlife habitat and populations, subsistence use, and historic and cultural resources, and considers the likely effects in the context of existing statutes and regulations, and mitigation measures. Existing statutes, regulations, lease and sale provisions ensure compliance with standards at discrete stages of development and production.

ADNR must consider current fields that have been unitized for reasonably foreseeable future development, including Sandpiper, Hammerhead, and Kuvlum. This analysis must include the incremental expansion of oil field roads and pipelines, onshore processing facilities, increased tanker traffic, increased offshore supply vessels including boats, fixed wing planes and helicopters, and the harm they will cause subsistence resources upon which the people of the North Slope depend.	Under AS 38.05.035(g)(1)(B)(vi)), ADNR is required to consider and discuss the reasonably foreseeable cumulative effects of oil and gas exploration, development, production, and transportation on the sale area. DNR is not required to "speculate" about the incremental expansion of oilfield roads and pipelines or the effects of the post-lease sale activities--exploration, development, production, and transportation--that are subject to future permitting (AS 38.05.035(h)).
This sale continues to jeopardize ANWR, including the lagoons, barrier islands, river mouths, and shorelines. There would be intense pressure in the future to construct onshore pipelines, roads, docks, and other support facilities in the refuge, which would be devastating to the wilderness and wildlife of the refuge.	This preliminary finding is written under the assumption that ANWR will not be available for support infrastructure. See Chapter Six, "Likely Methods of Transportation." Onshore development in ANWR can only take place if there is a change in federal law.
The BIF must analyze potential effects of onshore infrastructure to support offshore development and production on the coastal plain of the Arctic Refuge.	This preliminary finding is written under the assumption that ANWR will not be available for support infrastructure. Even if ANWR were available, the location, size, and extent of onshore infrastructure needs cannot be determined at the lease sale phase. This is speculative. Under AS 38.05.035(h), the director may not be required to speculate about possible future effects subject to future permitting that cannot reasonably be determined until a project is proposed. This includes speculation about the location and size of facilities.
There must be a stipulation that no temporary or permanent pipelines, roads, docks, or other onshore support facilities shall be allowed on the Arctic National Wildlife Refuge for exploration, development, and production of the offshore leases.	ADNR lacks jurisdiction to impose stipulations on federal lands. Onshore development in ANWR can only take place if there is a change in federal law.

There must be a stipulation prohibiting the use of undersea buried pipelines until this technology is thoroughly tested.	Proposed Mitigation Measure 7 requires that all pipelines, including flow and gathering lines, be designed and constructed to provide adequate protection from water currents, storm and ice scouring, subfreezing conditions, and other hazards determined at the project level. It also states that offshore oil and gas transportation pipelines will be encouraged if the director determines that the laying of such pipelines is technically feasible and environmentally preferable to transport by oil tanker or other means. Thus, in order to comply with this proposed measure, feasibility of pipeline technology will be demonstrated. This would require performance testing and post-construction monitoring.
The BIF cannot rely on a model based on past offshore spill data which does not incorporate the specific, greater risks that tankering in the Arctic ice would pose. A new analysis of tanker transportation needs to be included in this BIF (including oil spill risks, including for catastrophic accident, chronic spills, ballast water discharges, and impacts of ice-breakers needed to support the tanker traffic	The possibility of using tankers to transport crude oil in the Beaufort Sea is discussed in Chapter Six. Tanker transport in the Beaufort Sea is not a reasonably foreseeable result of this proposed lease sale.
The BIF must address the impacts, particularly cumulative effects of needed on-shore infrastructure on the Central Arctic Herd as well as the Porcupine Caribou Herd.	The impacts of onshore infrastructure on caribou are discussed in Chapter Five. The potential for impacts to the Porcupine Caribou Herd is under investigation.
The sale area includes two of the most important on-shore polar bear denning areas in Alaska, thereby increasing their chances of conflict with humans. The support activities for exploratory drilling such as fuel delivery could disturb dens and oil spills could have catastrophic effects on the bears.	Effects of oil and gas activities on polar bears are discussed in Chapter Five. Ice roads, upon which fuel delivery vehicles may travel, are sited away from preferred polar bear denning habitat.
The BIF should include a stipulation requiring bear interaction plans and mitigation for polar bear denning disruption, and prohibition of gravel extraction from river bottoms in areas of high polar bear denning concentrations.	Under proposed Mitigation Measure 23, USFWS and ADF&G are consulted to avoid disrupting occupied dens and avoid potential denning habitat. Material sites are surveyed prior to excavation. If any dens are discovered, operations must avoid them by one mile.
The BIF must include a stipulation imposing seasonal drilling restrictions to protect bowhead whales. Noise from oil and gas operations disorients whales, interferes with essential activities such as mating, nursing, and cow/calf bonding as well as cause displacement from prime feeding areas and migration routes.	Adopted. See proposed Mitigation Measure 17.

The spectacled eider and Steller's eider are listed threatened species under the ESA. The BIF must at a minimum contain a stipulation prohibiting gravel extraction from barrier islands.	Lessees must comply with the Recommended Protection Mitigation Measures for Spectacled and Steller's Eiders developed by USF&WS. See Lessee Advisory 5a. Under NSBCMP policies 2.4.5.1 and 2.4.5.2(a) and NSB Code §19.70.050(J) & (R). Substantial alteration of shoreline dynamics is prohibited. The NSBCMP policies and code will only permit mining and gravel extraction in the coastal area when a lessee can establish (1) there is a significant public need; (2) they have rigorously explored and objectively evaluated all feasible and prudent alternatives; and (3) no feasible and prudent alternative exists. They additionally require evaluation of such proposals with respect to type of extraction operation, location, possible mitigation measures, and season so as to lessen, to the maximum extent practicable, environmental degradation of coastal lands and waters. See proposed Lessee Advisory 1.
The BIF must address potential impacts on Arctic fish from oil spills, marine trenching, and solid fill construction of causeways and islands.	Impacts to fish from causeways and oil spills are discussed in Chapter Five. Effects from marine trenching would likely be temporary. See discussion of sub-sea pipelines in Chapter Six.
The BIF should include detailed scenarios for prevention, containment, and full clean up of oil spills and leaks. Scenarios should cover a wide range of spills and leaks, including a projection and plan for worst case scenario.	State law specifically states that the director may not be required to speculate about possible future effects subject to future permitting that cannot reasonably be determined until the project or proposed use is more specifically defined. At the lease sale stage it is impossible to put forth detailed scenarios for prevention, containment, and full clean up of oil spills. ADNR discusses spill oil spill risk, prevention and response in general terms in Chapter Six, as required by AS 38.05.035(g). Operators include likely scenarios in their oil discharge prevention and contingency plans that they must have approved prior to initiating exploration or development operations. The Finding is not the appropriate place for developing spill scenarios because information about the location and production rates is not available at the lease sale phase.

The BIF must note that many of the Arctic spill response measures are unverified as to their effectiveness for cleaning up a spill of any significant magnitude in Arctic ice-covered waters or in broken sea ice.	The Finding contains a discussion of oil spill response capability in broken ice in Chapter Six. Alaska Clean Seas, the response organization for the area, has compiled test results from worldwide Arctic research and conducted its own tests of various technologies for over 20 years. They have used this information to refine response tactics in their Technical Manual, which was released in draft in June 1998. The Manual will be incorporated into contingency plans that lessees must have approved by ADEC prior to beginning operations. The contingency plans go through a public review process, and ADEC may add conditions to its approval decision. Alaska Clean Seas is participating in the research program, MORICE (Mechanical Oil Recovery in Ice Infested Waters). The program, which began in 1995, is a multinational effort to develop technologies for more effective recovery of oil spills in ice-infested waters. Phase 1 involved an extensive literature review to identify available information from previous efforts to develop oil-in-ice recovery technologies. Phase 2 focused on qualitative laboratory testing of most of the concepts suggested in Phase 1. Phase 3 will further evaluate and develop selected concepts through quantitative laboratory testing.
The BIF must address the risks posed to subsea pipelines by ice gouging and scouring.	The risks posed to subsea pipelines by ice gouging and scouring are discussed in Chapter Six, "Likely Methods of Transportation."
The BIF should adequately address traditional knowledge and the impacts from sale on subsistence species.	Subsistence uses of the proposed sale area is described in Chapter Four. Effects of oil and gas activities on subsistence uses and on subsistence species is discussed in Chapter Five. Traditional knowledge is incorporated into the finding when it is available.
The BIF should address the effect of pipeline noise on marine mammals and the potential of electromagnetic fields generated by the pipelines to affect the behavior and migratory patterns of whales, seals, polar bears, and other marine mammals, and fish.	DO&G is investigating whether electromagnetic radiation effects on animals exist and can be measured. DO&G requests that information regarding such an effect be submitted for review.

The BIF must address protection of the boulder patch and other unique areas of biological productivity from the impact of routine operations such as sedimentation from dredged or fill materials, drilling waste discharges, and unforeseen events such as oil leaks and spills.	"Boulder patch" refers to a kelp and echinoderm community unique to the Arctic. This is listed as a sensitive area under Lessee Advisory 9.
There are additional areas in Camden Bay, Foggy Island Bay, and Stephansson [*sic*] Sound that are biologically significant and productive, but fall outside the definition used to determine the boulder patch. These areas must be addressed in the BIF.	Comment noted. Effects on lower trophic level organisms are discussed in Chapter Five.
The ten year life, and huge size of this Area Wide Sale pose continuous tremendous risk to both the physical environment and the social, cultural and economic fabric of the local communities.	ADNR believes that oil and gas leasing, development and exploration can be conducted in a way which will minimize the potential negative impacts on the environment and the social, cultural and economic fabric of the local communities. See Chapter Seven, "Mitigation Measures and Lessee Advisories."
Alaska Eskimo Whaling Commission, Thomas Napageak 6/24/97	
Defer leasing in all known bowhead whale feeding areas. The residents of Barrow, Nuiqsut and Kaktovik also depend on these waters for seals, fish and migratory waterfowl.	Bowhead whales feed in Canadian waters, in Alaska OCS waters, and all along the Beaufort Sea coast as they migrate west in the fall. The Spring migration is outside of the proposed sale area. The NSB believes Cross Island and Newport Entrance waters to be important whale feeding and hunting areas. Bowhead feeding areas are under study by the MMS which annually surveys the migration from airplanes. Operators also observe and record whale behavioral responses to oil and gas activity during the migration. Whaling teams also observe whale behavior, yet the relationship between humans and whales is not fully understood. Lessees must conform to mitigation measures, ACMP permit stipulations, and NSB enforcement and land management powers. Operations are restricted during whale migration periods by mitigation measures that avoid disturbing normal feeding and migratory behaviors of bowhead whales in state waters. OCS Sale 170 measures apply to waters beyond three miles, where most of the migration occurs. In state waters, exploration facilities, with the exception of artificial gravel islands, must be temporary and must be constructed of ice. If drilling must occur during the open water period when the whales may be in the sale area, the potential for oil spills and disturbance is minimized by the Seasonal

	Drilling Restriction (proposed Mitigation Measure 17). In order to ensure bowheads and their harvest is not disrupted, lessees must consult with Villages and the North Slope Borough (NSB) prior to operations plan approvals. Operations plans consider alternative site selection, requiring directional drilling, seismic and threshold depth restrictions, subsea completion, seasonal drilling restrictions, and the use of other appropriate technology (proposed Mitigation Measure 15). Proposed Mitigation Measure 16 prohibits facility siting on Cross Island, an important whaling base camp. It also prohibits facility siting in state waters around the island unless the lessee demonstrates that the project will not preclude subsistence access under the NSB's coastal district plan and only after a thorough ACMP review.
Work with local residents and oil and gas operators holding or working on leases in the Arctic OCS to structure a realistic oil spill cleanup demonstration under prevailing Arctic ice and weather conditions.	State regulations administered by ADEC require operators to conduct oil spill drills. ADEC is the state agency that can schedule drills and establish the scenario. The industry also designs and conducts exercises to train and test its response groups. Various sized exercises are conducted, including an annual large-scale mutual aid drill.
Incorporate the MMS mitigation measures from final EIS for Sale 144.	DO&G analyzed MMS OCS Sale 144 and Sale 170 mitigation measures and made modifications to ADNR measures when possible and appropriate. However, ADNR measures are more specific and detailed. ADNR incorporated subsistence conflict resolution language in the Central Beaufort Sea (Sale 86) and North Slope Areawide (Sale 87) mitigation measures.
Prohibit all offshore oil and gas exploration activity during active bowhead subsistence whale hunting.	DO&G believes that mitigation measures and lessee advisories, in addition to local land use powers and existing law, adequately protect whaling. See proposed Mitigation Measures 15, 16, 17, ad 18. See also proposed Lessee Advisories 1, 2, 4, 5, 6, 9, 10, 11, 12, and 14.
Consider requiring as a condition of its lease sales in the Beaufort and Chukchi Seas, that purchasers (and their affiliates, subcontractors, successors and assigns) operating in an area where subsistence activities might be affected, make a good faith effort to obtain an agreement of representatives of subsistence users to the relevant plan of operation prior to the	Adopted. Proposed Mitigation Measure 15 requires the division to work with agencies and the public to assure potential conflicts are identified and avoided. This proposed measure also requires that the lessee consult with potentially affected communities to discuss potential conflicts with the siting, timing, and methods of proposed operations. Additionally,

commencement of operations.	Lessee Advisory 14, advises that the NSB may, under its authorities, require the lessee to enter into a Conflict Avoidance Agreement with the AEWC prior to applying for a NSB rezoning or development permit.
The AEWC would like to further suggest that operators be required to solicit written comments from affected communities on an operator's proposed plan of operation no later than four months prior to the commencement of operations, with copies of those comments provided to the Department of Oil and Gas;	Part of this recommendation has been adopted and incorporated into proposed Mitigation Measure 15b. Permit applications are often not submitted to the division four months prior to commencing operations. Some operations, such as tundra travel do not require permit approval and are authorized under ACMP General Concurrence. Additionally, proposed Lessee Advisory 2 encourages the lessee to bring one or more residents of communities in the area of operations into their planning process.
Workout any differences through bilateral negotiations with affected communities and representatives; and if all differences have not been unresolved 30 days prior to the commencement date for operations schedule a meeting among the affected parties and a Division of Oil and Gas representatives for purposes of reaching resolution on outstanding issues.	The language in proposed measure 15 was the subject of extensive discussion and was agreed to by all agencies including the NSB as a result of an elevation for Sale 87. This measure requires that the lessee consult with potentially affected communities, including the AEWC prior to permit operations.
There would be severe adverse impacts resulting from oil spill, especially in light of the lack of a response and cleanup capability in the Arctic. We must know exactly how an oil spill would be handled and how successful current technology would be in addressing it.	Possible oil spill impacts are discussed in Chapter Five. ADNR participated with other state and federal agencies and the oil industry in the North Slope Spill Response Project Team for the past year and a half. The team developed spill scenarios and response tactics, which involved the analysis of current technology. These tactics were included in the Alaska Clean Seas' Technical Manual. The Manual is being reviewed and will be incorporated into industry oil discharge prevention and contingency plans.
The environmental impact statements for all Arctic offshore activity should clearly reflect the cultural and nutritional importance of these waters to our people.	Agree. Although not an EIS, this document must describe the current and projected uses of the sale area including uses and value of fish and wildlife (see Chapter Four).
Further investigation is needed into the effects of oil spilled on Arctic ice especially the affect of oil trapped in shorefast ice and on the integrity of that ice.	Research regarding oil spill response and cleanup technology continues and includes efforts to understand the effects of oil on and in ice. Alaska Clean Seas is participating in the research program, MORICE (Mechanical Oil Recovery in Ice Infested Waters). The program, which began in 1995, is a multinational effort to develop technologies for more effective recovery of oil spills in ice-

	infested waters. Phase 1 involved an extensive literature review to identify available information from previous efforts to develop oil-in-ice recovery technologies. Phase 2 focused on qualitative laboratory testing of most of the concepts suggested in Phase 1. Phase 3 will further evaluate and develop selected concepts through quantitative laboratory testing.
Concerned about the adverse effects of industrial noise, particularly seismic noise, on the behavior of bowhead whales and other marine mammals and on subsistence hunting activities.	Studies indicate that some geophysical activities may have an impact on the behavior of bowhead whales. The extent of effects on marine mammals varies depending on the type of survey and gear used. Measures may be imposed on geophysical exploration permits in the vicinity of bowhead whale migratory routes during spring or fall migrations. Seismic permits require ACMP review. Additionally, the NSB considers seismic surveys to be development activities and a Development Permit must be obtained from the NSB. A whale behavior monitoring program, similar to that conducted by BP Exploration (Alaska) in recent years, may be required by the borough for open-water seismic operations as a permit stipulation. Under proposed Lessee Advisory 4, copies of the non-proprietary portions of all Geophysical Exploration Permit Applications will be made available to the NSB, AEWC, and potentially affected subsistence communities for comment. Proposed Lessee Advisory 14 advises that the NSB may, under its authorities, require the lessee to enter into a Conflict Avoidance Agreement with the AEWC prior to applying for a NSB rezoning or development permit for the siting of permanent facilities in state waters.
The AEWC would like to see special attention given to the question of dumping of drilling muds and other byproducts into the Arctic OCS, as subsistence species migrate through heavy metal plumes associated with offshore drilling.	Comment noted. ADNR is investigating possible adverse health effects from offshore drilling discharges. All discharges must comply with the National Pollution Discharge Elimination System (NPDES) permit for Arctic waters. Discharges are regulated by ADEC and the U.S. EPA. Under proposed Mitigation Measure 21, discharge of produced waters into open or ice-covered marine waters of less than 33 feet in depth is prohibited.